*USFK Pam 385-3

HEADQUARTERS
UNITED STATES FORCES KOREA
UNIT #15237
APO AP 96205-5237

USFK Pamphlet
No. 385-3

9 December 2003

Safety

A SYSTEMS APPROACH TO SEASONAL SAFETY

*This pamphlet supersedes USFK Pam 385-3, dated 12 May 1987.

CONTENTS

SECTION I. INTRODUCTION.

1. PURPOSE. This pamphlet provides information to effectively implement the United States Forces Korea (USFK) systems approach to seasonal safety.

2. APPLICABILITY. This pamphlet applies to all personnel assigned or attached to USFK units or other activities.

3. REFERENCES. The following are required and related publications:

a. Required publications.

(1) FM 31-70 (Basic Cold Weather Manual). Cited in Section IV, paragraph 6g.

(2) USFK Reg 190-1 (Motor Vehicle Traffic Supervision). Cited in Section III, paragraph 6f(1).

(3) USFK Reg 190-2 (Off-Limits Areas and Establishments). Cited in Section III, paragraph 4b.

b. Related publications.

(1) AR 40-5 (Preventive Medicine).

(2) FM 21-10 (Field Hygiene and Sanitation).

(3) GTA 8-6-12 (Cold Injury & First Aid Procedure).

(4) TB Med 507 (Heat Stress Control and Heat Casualty Management).

(5) TB Med 575 (Swimming Pools and Bathing Facilities).

SECTION II. GENERAL.

1. BUDDY SYSTEM. While traveling off post, USFK personnel are encouraged to use the buddy system and avoid large demonstrations. Information about current situations around the peninsula is available through local authorities.

2. MEDICAL EVACUATION. Information on medical evacuation can be found on the web at https://204.208.28.13/52bn/medevac_files/frame.htm

3. KOREAN HEMORRHAGIC FEVER. See Appendix B. Additional information is available at http://8tharmy.korea.army.mil/safety/TRAINING%20LITERATURE.htm

4. MALARIA IN KOREA. See Appendix C.

SECTION III. SPRING AND SUMMER SAFETY.

1. GENERAL. During the spring and summer months, many USFK personnel will participate in a variety of outdoor activities. Regardless of which activities are chosen (swimming, hiking, bicycling, etc.), it is important to take time to recognize the risks involved, whether on or off duty, on or off post.

2. DESTRUCTIVE WEATHER/RAINY SEASON. The destructive weather (monsoon rain & typhoon) season usually begins in late June and continues through the end of September. This weather period presents high risk to both personnel and property. In the past, flash floods and mudslides from monsoon rain have resulted in loss of life and extensive property damage. Leaders should take extra precautions when conducting training exercises during the rainy season. Procedures must be established to prevent adverse weather related accidents. Figures 1-1 and 1-2 below show some of the devastation that have occurred in the Republic of Korea (ROK) over the past few years, resulting in death to military and Korean civilian personnel and millions of dollars in damage.

Figure 1-1

Figure 1-2

a. Monsoon Risk Management (RM) Points.

(1) Troops in a field environment will be at great risk during this high-risk period.

(2) Heavy rains can occur outside the monsoon season.

(3) Weather may be different than forecasted

(4) Flooding can occur anywhere and in different areas.

(5) Weather should be a risk assessment factor twelve months a year.

(6) Walk terrain; develop/brief egress plans.

(7) Identify weak swimmers and non-swimmers.

(8) OPCON relationships are challenging.

(9) Make risk decision timely or elevate.

b. Common Safety Practices During Heavy Rains:

(1) Restrict vehicle travel. Do not drive through a flooded area. If you come upon a flooded road, turn around. More people drown in their cars than anywhere else.

(2) Do not park vehicles or equipment at the bottom of a valley, canyon, or on the bank of a small stream.

(3) Exercise care in selecting bivouac areas. Small streams can rise several feet during heavy rainfall.

(4) Do not cross or ford streams.

(5) Do not walk through flooded areas. As little as six inches of moving water can knock you off your feet.

(6) During and after heavy rain, beware of bridges over streams. High water can undermine bridges and render them unsafe.

(7) Avoid traveling on the shoulders of roads during and after heavy rains.

(8) On receipt of flood warnings, make sure all supervisors are alerted and, if necessary, move equipment and supplies to high ground.

(9) Monitor weather reports closely.

(10) Stay away from downed power lines and electrical wires. Electrocution is another major source of deaths during floods.

(11) Look out for animals – especially snakes. Animals lose their homes to floods and may seek shelter in yours.

c. Lightning Storms:

(1) Stay away from isolated trees or poles in open areas.

(2) Avoid open fields or bare hilltops.

(3) Avoid large masses of steel in open terrain (e.g., mounted guns, field pieces, wire fences, vehicles). If caught suddenly in an electrical storm while in a rubber-tired vehicle, stay in place.

(4) Do not seek shelter under a vehicle. A body under a vehicle may become a conductor of an electrical charge from the vehicle to the ground.

(5) If in a group, spread out; do not huddle together. A mass of bodies attracts lightning. If inside a building during an electrical storm, remain clear of water pipes and electrical or communication lines.

(6) When an electrical storm is approaching, supervisors of swimming pools will cease operations, and move all personnel out of the immediate area.

(7) Avoid beaches, boats, swimming areas, wire fences and riding on top of equipment.

(8) Do not use field telephones during electrical disturbances, except in an emergency.

3. HEAT INJURY PREVENTION.

a. Throughout the Army, heat injuries continue to be a preventable cause of soldier injury and even death. A variety of hazards exist during the summer season that increases risks for everyone, regardless of whether at work or play. Summers in the ROK tend to be hot and very humid, placing unprepared personnel at risk for serious injury and even death. High temperatures increase the potential for heat related injuries, and greater involvement in recreational activities (swimming, softball, cookouts, etc.) presents added risk for drowning and other summer-related accidents. However, by using the RM process to identify the risks associated with a given activity, appropriate actions can be taken to prevent warm-weather related accidents and to ensure a happy, accident-free summer season. No matter what type of sports or activities you or your family may participate in this summer, always keep an eye out for potential safety hazards and look out for each other. It could save your life.

b. Military operations must continue, regardless of weather conditions. This means training and preparation for the prevention of heat injuries should be a high priority on every commander's training schedule. Soldiers should be trained in utilizing work-rest tables and hydration standards, signs and symptoms of heat injuries and use of the buddy system to prevent injury. Despite all efforts, environmental casualties may occur in military operations; however, commanders/supervisors should never allow a heat injury to become a casualty.

c. Heat injuries consist of Sunburn, Heat cramps, Heat exhaustion, and Heat stroke.

d. Wet Bulb Globe Temperature (WBGT). Technical assistance with WBGT monitoring is available through all Preventive Medicine (PM) detachments and the Preventive Services Directorate. PM detachments will provide WBGT monitoring for areas where they are assigned. Local medical health care facilities will perform the measurements in areas where there are no assigned PM assets. The index will be provided, upon telephonic request, to all troop unit/garrison operations offices and other facilities.

e. Commanders can reduce their unit's risk for heat injury by--

(1) Ensuring their personnel minimize use of caffeine and alcohol. Dietary supplements, good nutrition, and adequate hydration also help reduce the potential for heat injuries.

(2) Utilizing unit field sanitation teams to monitor heat category (WBGT) and work-rest cycles.

(3) Reassessing the status of the unit as soon as anyone suspects an environmental casualty has occurred.

(4) Scheduling high-risk activities (road marches, runs and PT tests) during cooler parts of the day. Water should be readily available to all participants.

(5) Allowing new arrivals at least two weeks to acclimate to the heat and humidity of the Korean summer by gradually increasing physical activity during this period until they are performing at the same level as others in the unit. Acclimatization is acquired by working in hot environments for limited periods of time.

Training programs for personnel who are climatically and/or physically unseasoned to heat should be limited in intensity and time. All individuals, regardless of physical condition, require acclimatization when exposed to a heat stress environment. If the individual undergoes progressive heat exposure and physical exertion, it takes about two weeks to become acclimated. The following table is a suggested acclimatization plan:

Table 1. Schedules of Work During Acclimatization

	Moderate Conditions		Severe Conditions	
	WBGT below 78		WBGT above 78	
	Hours of Work		Hours of Work	
Day	Morning	Afternoon	Morning	Afternoon
1-2	1	1	1	1
3-4	1 ½	1 ½	1 ½	1 ½
5-6	2	2	2	2
7-8	3	3	2 ½	2 ½
9-10	Regular Duty, follow Work/Rest Cycles		3	3
11	Regular Duty, follow Work/Rest Cycles		Regular Duty, follow Work/Rest Cycles	

(6) http://chppm-www.apgea.army.mil/heat/ is a web page filled with excellent resources on heat injury prevention and treatment. All are encouraged to make use of the information and briefings available there.

(7) Leaders should make use of the work-rest cycle and hydration guides when planning and conducting unit activities.

(8) Water Consumption/Salt Loss. When the body loses water, it also loses salt. Salt should be replaced by normal consumption of food. Do not use salt tablets. An individual may lose more than a quart of water per hour through sweating. Water loss must be replaced by frequent intake of small amounts of water. Water should be sipped, not gulped. Do not conserve water. Individuals *must* drink, even when they are not thirsty! Thirst is not an adequate indicator of dehydration. The following chart represents fluid-replacement guidelines. The U.S. Army Research Institute for Environmental Medicine provided revised recommendations in 1998. (Army Policy Guidance for Fluid Replacement during Training (DASG-HSZ) 14 Jan 99)

Table 2. Fluid Replacement Guidelines for Warm-Weather Training (Average Acclimated Service Member Wearing Hot-Weather BDU)

		Easy Work		Moderate Work		Hard Work	
Heat Category	WBGT °F	Work/ Rest*	Water Per Hour	Work/ Rest*	Water Per Hour	Work/ Rest*	Water Per Hour
1 (White)	78-81.9	No limit	½ qt	No limit	¾ qt	40/20 min	3/4 qt
2 (Green)	82-84.9	No limit	½ qt	50/10 min	¾ qt	30/30 min	1 qt
3 (Yellow)	85-87.9	No limit	¾ qt	40/20 min	¾ qt	30/30 min	1 qt
4 (Red)	88-89.9	No limit	¾ qt	30/30 min	¾ qt	20/40 min	1 qt
5 (Black)	>90	50/10 min	1 qt	20/40 min	1 qt	10/50 min	1 qt

**Rest* means minimal physical activity (sitting or standing) and should be accomplished in the shade if possible.

- The work-rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specified heat category. Fluid needs can vary based on individual differences (± ¼ qt/h) and exposure to full sun or full shade (±¼ qt/h).
- **CAUTION:** Hourly fluid intake should not exceed 1½ quarts.
- Daily fluid intake **should not exceed 12 quarts.**
- If wearing body armor, add **5°F** to WBGT in humid climates
- If wearing NBC clothing (MOPP 4), add 10°F to WBGT.
- No Limit can sustain work for at least 4 hours in the specified heat category.
- Fluid needs can vary based on individual differences (+ ¼ qt/hr) and exposure to full sun or full shade (+ ¼ qt/hr).

Table 3. Work Requirements.

Easy Work	Moderate Work	Hard Work
• Weapon maintenance • Walking hard surface at 2.5 mph, <30-pound load • Manual of arms • Marksmanship training • Drill and ceremony	• Walking loose sand at 2.5 mph, no load • Walking hard surface at 3.5 mph, <40-pound load • Calisthenics • Patrolling • Individual movement technique; i.e., low crawl, high crawl. • Defensive position construction • Field assaults	• Walking hard surface at 3.5 mph, >40-pound load • Walking loose sand at 2.5 mph with load

Following these requirements will not necessarily prevent dehydration. Dark urine is an indicator of dehydration.

NOTE: Individuals who are overweight, dieting, or who have had past heat casualties are more prone to heat injuries. As a result, their activities must be closely monitored:

(9) Alcohol and soft drinks are not substitutes for water. Alcohol exacerbates dehydration, and soft drinks are not absorbed as rapidly as water into body tissue. Soft drinks containing salts (e.g., *Gatorade*) may increase individuals' water requirements. Enforce hydration and monitor water use.

(a) Provide cool water when possible.

(b) Enforce work/rest cycles.

(c) Watch for signs of heat injury (see below).

(d) Know individual physical conditions and assign appropriate work.

(10) Establish a "buddy system." One of the single best methods to reduce the chance of accidents is to establish a comprehensive "buddy system" which includes monitoring for water and food consumption, hygiene, fatigue, illness, heat injuries, and common-sense safety practices for swimming, driving, etc.

f. Signs, Symptoms, First-Aid. When prevention fails, it is critical for everyone to be able to recognize and treat heat injuries. Everyone should review first aid procedures outlined in their training manuals. The following is a discussion of the most common injuries:

(1) Heat Cramps. Heat cramps are characterized by muscle pains or spasms--usually in the abdomen, arms or legs--that affect people who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture. The low salt level in the muscles causes the painful cramps. Heat cramps also may be a symptom of heat exhaustion. If the individual has heart problems or is on a low sodium diet, provide immediate medical attention.

(a) Stop all activity and sit quietly in a cool place; move to a shady area.

(b) Slowly drink at least one quart of water or clear juice.

(c) Individuals should not return to strenuous activity for a few hours after the cramps subside because further exertion may lead to heat exhaustion or heat stroke.

(d) Seek medical attention for heat cramps if they do not subside in one hour.

(2) Heat Exhaustion. This is one of the more mild summer health problems. It results from spending too much time in the heat and occurs when perspiration leads to excess loss of fluids and salts (electrolytes). Even if not directly in the sun, a person can lose too much fluid by staying outdoors too long on a hot day or spending too much time in an overly hot house. When exposure to extreme heat is combined with strenuous physical activity, the risk of heat exhaustion becomes even greater.

(a) Symptoms of heat exhaustion include--

((1)) Heavy perspiration with pale, moist and cool skin; weakness, dizziness, loss of appetite, and severe headache.

((2)) Heat cramps, nausea (with or without vomiting), urge to defecate, rapid breathing, confusion, and tingling of hands and/or feet.

NOTE: If these symptoms occur, lay the person on his/her back in the coolest nearby place, loosen any tight clothing, lower his/her head slightly, raise his/her feet, assist the body to cool by placing cool moist cloths on his/her forehead and wrists, and fan to help cooling.

(b) To prevent heat exhaustion, drink extra amounts of liquids to replace body fluids lost through perspiration. Water, fruit juices or fruit-based drinks (e.g., lemonade) are preferable to tea, soft drinks, coffee or alcohol. Beverages that contain caffeine or alcohol often result in more frequent urination, which increases the body's loss of fluids. Other precautions to avoid heat exhaustion include--

((1)) Stay indoors in a cool place as much as possible. If you must spend time outdoors, pace yourself and take frequent water breaks. Have a plan to take breaks in the shade or coolest place available and ensure that ample supplies of water or fruit drinks are handy.

((2)) If possible, schedule strenuous activity (jogging, bike riding, lawn mowing, etc.) during morning or evening hours when the temperature is cooler.

((3)) Wear lightweight, loose fitting clothing that does not interfere with the evaporation of perspiration.

((4)) If you begin to feel dizzy or nauseated, or develop a headache, go immediately to the nearest shaded area or cool place and sit or lie down. If the symptoms are not relieved within a few minutes, or if conditions worsen, seek medical attention immediately.

(3) Heatstroke.

(a) This is caused by overexposure to direct sunlight, with or without physical activity. Just sitting or lying too long in the sun can result in heatstroke. This condition can be fatal and should be considered a medical emergency. The casualty's skin is red (flushed), hot, and dry. The individual may experience weakness, dizziness, confusion, headaches, seizures, nausea (stomach pains), and his/her respiration and pulse may be rapid and weak. Unconsciousness and collapse may occur suddenly.

(b) If any of these symptoms occur, place the person in a semi-sitting position to reduce the amount of "hot" blood going to the head. Choose a spot in the shade or indoors, loosen tight clothing, flood the head and body with COLD water and get medical attention immediately. If the person has a seizure, protect him or her from striking objects and DO NOT put anything in the mouth. The most important treatment for heatstroke is to rapidly cool the victim with cold water or ice.

(c) Heatstroke occurs most often in the spring and early summer, before the body adapts to higher temperatures. High humidity can increase the risk because it keeps the body from cooling itself as effectively. Heat exhaustion does not always precede heatstroke. Athletes and the elderly are more prone to heatstroke.

(d) To avoid heatstroke during the hot summer months, stay out of the sun as much as possible and keep cool--preferably in an air-conditioned place. If air conditioning is not available, use fans or open windows to circulate the air. However keep blinds or curtains closed when sunlight is coming directly in the windows. Take frequent cold baths or showers and try to avoid cooking or baking during the hottest part of the day.

g. Dress Properly.

(1) The type, amount, and manner of the wear of clothing have marked affects on the heat load imposed on the body and its ability to dissipate the heat. Clothing can help if it prevents the sun's radiant heat from being absorbed by the body. Loose fitting clothing allows circulation of air and enhances the cooling evaporation of sweat.

(2) Shirts should not be removed in non-shaded areas. Blousing of trousers or tight neckwear should not be allowed when high temperature prevails.

(3) Wide-brimmed hats, sunglasses, sweatbands and proper footgear are important. Loosely woven cotton clothing will allow air to circulate better and sweat to evaporate faster than synthetic materials such as nylon and polyesters.

(4) Excessive or tight fitting clothing, web equipment, and packs reduce ventilation needed to cool the body. During halts, rest stops, and other periods when such items are not needed, they should be removed if the mission permits.

(5) Battle Dress Uniform (BDU). The temperate weather BDU ensemble has proven to retain more body heat than the lightweight BDU's or the hot weather uniform. There is a decreased evaporation to sweat production ratio of about 10 to 15 percent, which results in increased body temperature. To facilitate heat loss when wearing BDUs in WBGT conditions exceeding category Green, military personnel should remove their BDU jackets and un-blouse pants.

(6) Mission Oriented Protective Posture (MOPP). MOPP is not a rigid procedure that puts everyone in lockstep. It is the flexible use of protective clothing and equipment that balances protection with performance degradation during training. The higher the MOPP level, the more protection it provides. But at the same time, the higher the MOPP level, the more it degrades the performance and the more susceptible it makes the service member to heat injury.

(a) MOPP is a tool for leaders to use based on the threat, the temperature, the work rate, and the mission. Leaders must prevent NBC casualties on the one hand while reducing heat and fatigue casualties on the other.

(b) The leader should weigh the needs of individual protection against unit efficiency. If the mission is so urgent that it becomes a choice of one or the other, there is no question; heat casualties will recover faster than chemical casualties. Nevertheless, commanders and leaders must guard against heat casualties when service members are in MOPP gear performing hard physical work.

(c) Wearing full MOPP equipment increases the risk of heat injury due to protective clothing interfering with the ability of the body to dissipate heat. Body temperature increases and keeps increasing rapidly as the ambient temperature and humidity rise. Thus, for the same amount of work while wearing MOPP equipment, the accumulation of body heat is much greater and the heat stress index is markedly increased. Wearing MOPP equipment raises the effective heat stress index temperature 10°F. In other words, it raises all heat categories to black.

(d) Wearing of MOPP gear can cause heat injuries at ambient temperatures as low as 70°F if precautions are not taken. Personnel must drink sufficient quantities of water before and during the MOPP training to prevent dehydration and heat stress injuries.

Table 4. Injury Prevention for MOPP Training.

MOPP LEVEL	PROTECTIVE OVERGARMENT	PROTECTIVE FOOT COVERS	MASK W/HOOD	PROTECTIVE GLOVES
0	Readily available	Readily available	Carried	Readily available
1	Worn	Carried	Carried	Carried
2	Worn	Worn	Carried	Carried
3	Worn	Worn	Worn	Carried
4	Worn	Worn	Worn	Worn

Table 5. Example Variations of MOPP.

Note: The various MOPP levels may be varied as shown below.

WORK RATE	EXAMPLE VARIATIONS OF MOPP		
	50° or Less WBGT	50° - 70° WBGT	70° - 78° WBGT
LOW	Wear full protective clothing and equipment	Progressively open hood and clothing	Remove and carry mask, hood, and gloves. Remove some protective clothing
MODERATE	Wear full protective clothing and equipment	Remove and carry mask, hood, and gloves. Open protective clothing and duty uniform.	Remove and carry mask, hood, and gloves. Remove some protective clothing
HEAVY	Remove and carry mask, hood, and gloves. Progressively open and remove some protective clothing	Remove and carry mask, hood, and gloves. Remove some protective clothing	Remove and carry mask, hood, and gloves. Remove protective clothing.

Work Description Definitions.

- Low. Motorized movement or administrative work, resting in place, classroom activities, and most work in administrative areas.
- Moderate. Improvement of positions or bivouac sites, very light digging, area police, dismounted drill, weapons cleaning, and vehicle driving.
- Heavy. Dismounted assault or force marching; patrolling or force marching carrying field gear, litter bearing, bridge building, and carrying equipment heavier than 45 pounds.

Table 6. Work/Rest Cycles Used For MOPP Training Of Personnel.

WBGT	LOW	MODERATE	HEAVY
78°+	Do not train in MOPP 4	Do not train in MOPP 4	Do not train in MOPP 4
70°-78°	No MOPP restrictions	30/25*	Do not do heavy work
50°-70°	No MOPP restrictions	40/20*	20/25*
Below 50°	No MOPP restrictions	No MOPP restrictions	No MOPP restrictions

NOTES:

Individuals should drink a minimum of 5 quarts of water per day when the WBGT is less than 80 and minimum of 13 quarts per day when WBGT is greater than 80.

** Indicates number of minutes of work/rest period*

4. SWIMMING.

a. Serious injuries and death occur when people fail to observe water safety precautions. Water related accidents normally result from poor judgment.

b. In accordance with Appendix A, USFK Reg 190-2, the following areas within the ROK are off limits.

(1) Streams, lakes, reservoirs, rivers, ocean beach areas, or other natural bodies of water (unless specifically approved for use by the area or installation commander) for activities such as wading, swimming, bathing, diving, boating, or ice-skating.

(2) These areas may be used for fishing, sunbathing, or other activities in which contact with the water is minimal.

(3) As an exception to these restrictions, personnel participating in group tours sponsored by various organizations within the ROK may participate fully in tour activities.

(4) Personnel may also use hotel swimming pools, ice skating rinks, and other commercial recreational facilities that have safety personnel on duty. However, personnel using any of the facilities listed above must understand that they do so at their own risk. U.S. Health and Safety officials do not monitor these off-post areas and facilities.

(5) The ability to swim is the greatest water hazard insurance you can have. There is no substitute for knowing how to swim to protect yourself and others. The following safety tips are worth remembering since many "good swimmers" have been drowning victims:

(a) Whether swimming at a beach or a pool, do not enter the water alone unless a lifeguard is on duty.

(b) Never swim when exhausted, overheated, or immediately after eating.

(c) Don't drink alcohol and swim.

(d) When a storm approaches, get out of the water.

(e) Before diving, make sure the water is deep enough and check for underwater hazards.

(f) If you swim in a public swimming pool, follow these health and safety tips:

((1)) Determine if a lifeguard is present, especially if children are with you. If no lifeguard is on duty, do not let children swim unless a responsible adult who knows lifesaving techniques and first aid accompanies them. No one should swim alone, no matter how experienced a swimmer that person may be.

((2)) Look around the pool area to be certain lifesaving devices, such as a floating ring buoy and shepherd's crook, are readily available for emergency use.

((3)) Be sure a grate covers the drain at the deep end of a swimming pool or in a wading pool. The suction created by the pool's circulating pumps can be very dangerous unless it is reduced by grates.

((4)) To reduce the risk of eye, ear, nose or throat infection from contaminated water, swim only in pools in which water quality is properly maintained. Although it is impossible to tell if water is free of bacteria, the water should appear crystal clear, be continuously circulated, and be maintained at a level that allows free overflow into the gutter or skimmer. There should not be a strong odor of ammonia or chlorine.

c. Hypothermia

(1) Hypothermia is the process of reducing the human body temperature below 98.6 degrees. It is not always easy to spot but watch for the following:

(a) Shivering, which signals a drop in your skin's temperature and is an attempt by the body to create heat by exercise.

(b) Muscle rigidity and cramps. The body restricts blood flow to the extremities to conserve heat. Swimming ability, especially endurance, is greatly reduced so even an experienced swimmer can be as susceptible as a novice.

(c) Bluing of lips, ear lobes, fingers, or toes and difficulty using the hands.

(d) Unusual or uncontrollable breathing such as sudden gasping or rapid breathing.

(e) A person suffering from hypothermia is generally pale, puffed face, listless, drowsy and confused. Areas of the body that are usually warm, such as the armpit, will be cold and clammy. Breathing may be slow and shallow.

(2) Cold water can induce hypothermia. Check the water temperature before swimming; ensure the body is acclimated to cold water slowly by rubbing the extremities with water and jiggling the arms in water up to the elbows. If the water still feels cold or uncomfortable, the swimmer should get out of the water; do not enter the water rapidly thinking that will overcome the shock of the cold.

(3) Cold water chills 25 times faster than cold air. Water as cold as 69°F can slow a swimmer down and cause him/her to drown. Cold water blues may result from a quick dive or fall into water that is below 70°F. The typical victim falls or dives into cold water and just disappears. This may be caused by the sudden injection of cold water into the ear canals, which can cause vertigo. The victim becomes disoriented and cannot tell which way is up.

(4) Sudden exposure of the upper chest to cold water can trigger uncontrolled rapid breathing and gasping and will increase blood pressure, pulse rate, and metabolic rate. If the head is under water when the reflex is triggered, the victim may not be able to hold his breath long enough to surface and a sudden involuntary gasp can suck water into the lungs, causing almost immediate drowning.

(5) Treating mild hypothermia consists of getting the victim into warm, dry clothes, and serving them a warm drink other than alcohol. (Alcohol opens the blood vessels close to the skin, making a person feel warm, while robbing heat from the inner organs.) Try to keep the victim awake and talking, with his/her head level lower than the rest of the body. For more severe cases, dress the victim in layers of dry clothing or blankets, and send for medical help immediately.

d. Drown-Proofing:

(1) Drowning is one of the largest causes of accidental death for American infants and children under the age five. Drown-proof your family--drowning victims encompass all groups. Always take the following precautions when young children are in or around swimming areas:

(a) There is no substitute for adequate supervision. Supervise all young children while they are in, on, or near the water. Drowning and near-drowning occur in familiar surroundings during very short lapses in supervision.

(b) Do not have older siblings watch younger children in the water. They are not trained or mature enough to be given such a responsibility.

(c) Take a cardio-pulmonary resuscitation (CPR) course. Know what to do in case of an emergency. And when there's an emergency - Call 911 on post or 119 for local Korean assistance!

(d) For CPR training contact the Local Area American Red Cross.

(e) Do not rely on floatation devices or swimming lessons to protect a child. Children are not waterproof.

(2) Whether you are boating, water skiing, or fishing, always be prepared for the unexpected in, on, or around water. Having knowledge and competence in the basic skills of survival swimming will ensure your safety in water during an emergency and make the difference between life and death.

(3) During an emergency, don't fight the current. Swim to shore either with or diagonally across the current. If in weeds, don't thrash; use arms easily, draw loose slowly and gently, and swim with the current. If you get leg cramps, roll to a face down position, knead area of cramp, and stretch muscle. Lastly, disrobing in water is tiring. Your clothing will hold air and prevent chilling.

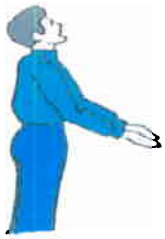
(4) The skill of survival floating can be performed as follows:

(a) Resting Position. Swimmers start with air in the lungs and hold their breath, letting the arms and legs dangle. The face is kept down so that the back of the head is at the surface.

(b) Preparing to exhale. While maintaining this body and head position, the swimmer slowly lifts the arms to shoulder height. If leg action is also to be used, slowly separate the legs into a modified scissors kick.

(c) Exhalation. While exhaling, make sure that the back of the head is still at the surface; the swimmer raises the head no higher than necessary for the mouth to clear the surface. The eyes should be opened to help judge the head and body levels.

(d) Inhalation. As soon as the head is vertical, the swimmer presses the arms downward and brings the legs together. This easy downward pressure should allow time for air to be breathed in through the mouth. The action of the arms and legs should not be vigorous enough to lift the chin out of the water.



(e) Return to the resting position. Allow the arms and legs to move back to the dangling position described in paragraph a.

***NOTE.** If the individual sinks too far below the surface when at the dangling position, a downward press or easy fanning action of the arms will stop the sinking of the body and help float back to the surface. A light scissors kick can also be combined to arrest the sinking action.*

5. INSECT BITES.

a. Ticks and mosquitoes can transmit serious and sometimes deadly diseases to humans. Here are some suggestions for avoiding stings and bites.

b. Wear light-colored clothes. Mosquitoes are attracted to darker colors. Also, you can see ticks more easily on light-colored clothes.

c. Wear long pants and a long-sleeved shirt that has a collar. Tuck in your shirt. You can also tuck your pants into your socks.

d. Avoid thick woods, dense grass, pools and puddles.

e. Check yourself for ticks when you return. Most are large enough to be easily seen, but some are tiny, so look carefully on you scalp, the back of your neck, behind your ears, and under your arms.

f. If the tick has started to bite and is attached, carefully remove it with a pair of tweezers.

g. If you get bitten, treat the area with a topical antibiotic. If you get a rash and have flu-like symptoms, see a doctor.

h. If you use a bug repellant, read the label carefully and follow the instructions. Some other tips about bug repellants--

(1) Don't let kids apply them by themselves.

(2) Don't apply to a child's lips, mouth, hands or eyes, or over a cut or irritated skin.

(3) Wash off the repellant when you come back indoors and no longer need protection.

6. SPORTS INJURIES.

a. General. Sports and recreational activities are more than play. Participation in athletics improves physical fitness, coordination, morale, and self-discipline and provides valuable opportunities to learn teamwork. However, it affects USFK's ability to accomplish its mission when service members are injured while participating in sports. Sports injuries account for approximately 25% of all personal injuries in USFK. Taking the following steps will prevent/reduce sports injuries:

(1) Maintain proper physical conditioning and flexibility; always warm up before physical activity and cool down afterwards.

(2) Know and abide by the rules of the sport. The "win at all costs" attitude can lead to injuries.

(3) Wear appropriate protective gear when required (e.g., facemask, shin guards, eye guards, and chest protectors).

(4) Check athletic equipment to ensure it is appropriate and safe to use.

(5) Wear appropriate footwear for the activity (e.g., cleats when playing football, soccer, or baseball).

.

(6) Inspect sport activity areas for hazards such as potholes, broken glass, and rocks.

(7) Avoid playing when very tired or in pain.

(8) Protect yourself from the environment during physical activities; drink lots of water to prevent heat injuries, use sunscreen and sun glasses to help protect the skin and eyes from ultraviolet light, and avoid exercising outdoors during the times of day when the pollutants are at their highest levels- usually mid to late afternoon.

b. Basketball Safety.

(1) Ensure that appropriate shoes are worn for the playing surface. For example, basketball shoes should be designed for quick turning, stopping, and jumping.

(2) The use of tape on ankles or ankle supports with high-top athletic shoes can reduce the incidence and severity of ankle injuries.

(3) Pads should be worn to protect the knees and elbows from bruises or floor burns.

(4) Mouth guards to protect the tongue as well as the teeth should be used.

(5) Players should not wear jewelry such as chains, rings, and metal wristbands during games. Eyeglasses should be secured on the head and should have shatterproof lenses.

(6) Stress the importance of warm-up exercises before and after playing.

(7) Prohibit horseplay or unsportsmanlike conduct. Players should be coached to play fair, have fun, and abide by safety rules.

c. Baseball And Softball Safety Rules.

(1) Check the playing field for holes, ditches, broken glass, rocks, uneven and slippery areas or other dangerous objects.

(2) Inspect playing and protective equipment for condition, defects, and fit.

(3) Be careful swinging the bat; make sure no one is too close.

(4) After you hit the ball, don't throw or sling the bat; drop it as you run to base.

(5) Throw the ball to - not at - other players.

(6) Wear proper shoes (no metal spikes) and a batting helmet when at bat.
If you play catcher, wear a facemask, protective cup (if you're a male), chest protector, and shin guards.

(7) Do not run over another player to knock the ball loose.

(8) On fly balls, call for the ball so you don't run into another player.

(9) Be careful chasing the ball. If it goes into the street, look both ways to make sure there are no cars coming before you get the ball.

(10) If there is lightning in the area, stop playing and seek shelter other than a tree.

(11) Keep a first aid kit available for minor injuries and a list of emergency phone numbers for a serious injury.

d. Racquetball Safety. Safety is the responsibility of every player who enters the court. At no time should the physical safety of the participants be compromised. Racquet-struck balls can travel at speeds that exceed 100 mph. The smaller the ball, the greater the risk of injury to unprotected eyes, because less impact is absorbed by bones above and below the eye. To prevent eye injuries, players must use PROTECTIVE EYEWEAR!!!

e. In Line Skating. In-line skating is a fast growing sport. Like any sport involving motion there is a certain degree of risk. Skate smart! Always wear protective gear - helmet, reflective vest, wrist guards, knee and elbow pads, and gloves. Following these and the safety tips below will help you avoid injury and allow you to enjoy this exciting sport:

(1) Move to the left of pedestrians, cyclists, and other skaters to pass. Except when passing, skate to the right of the path.

(2) Get instruction. Learn to stop safely by using the brake pads at the heel of most in-line skates.

(3) Keep your blades in top shape. Check your brakes often and replace when excessively worn.

(4) Never wear headphones or earphones while skating.

(5) Do not skate at night--others can't see you and you can't see obstacles or other skaters.

f. Bicycle Safety. Bicycling in Korea can be safe and enjoyable if you apply wisdom and courtesy. The following will ensure that your ride is safe and fun:

(1) In accordance with USFK Reg 190-1, all personnel operating or riding on motorcycles, mopeds, bicycles, in-line skates, coasters, skateboards, sleds, or any non-motorized vehicle on a public roadway, street, bicycle path, or any other right-of-way under USFK jurisdiction will wear:

(a) Helmet. The helmet will meet or exceed the standards set by the American National Standards Institute or the Snell Foundation. The helmet will be equipped with either a neck or chin strap, which is to be securely fastened while in motion.

(b) Reflective vest. If wearing a backpack, the vest must be worn over the backpack.

(2) Headphones or earphones will not be used.

(3) Bicycles used during the hours of darkness will be equipped with front and rear operational lights. The front light will emit a visible light a minimum distance of 500 feet (150 meters). The rear light will emit visible light a minimum distance of 100 feet (30 meters).

(4) In addition to the requirement stated above, personnel operating or riding on motorcycles, mopeds, or bicycles must comply with established traffic laws and signs whether on or off installation.

(5) Give your bicycle a safety check before riding. Ensure that the following equipment is present and functioning correctly: operable brake system capable of making the wheels skid on dry, level, clean pavement; head lamps; taillight as stated above; and an audible warning bell or horn.

(6) Ride as near to the right side of the road as practical. Be alert for road hazards that may cause you to lose control.

(7) Do not cling or otherwise be towed by another vehicle.

(8) Do not carry items that will not allow both hands to be free for control and signaling.

(9) Do not carry passengers unless the bicycle is built for two.

(10) Ride single file, not two abreast. Do not ride on the sidewalks.

(11) Watch out for sudden opening of car doors, cars pulling out of driveways, gravel on roads, uneven or slippery surfaces, and speed--especially when going down hill.

g. Jogging. Jogging is an individual recreational activity that could cause disabling injuries. The safety of joggers or runners is an individual responsibility. Observe the following guidelines:

(1) Jog in single file off the roadway, on the side facing traffic.

(2) Jogging during the hours of darkness or inclement weather is discouraged. When running, make maximum use of sidewalks (when available), athletic fields, and running trails.

(3) All personnel (military, civilians, and family members) running on USFK installations will wear reflective safety vest

(4) Watch for road hazards and turtle traps.

(5) Do not wear headphones or earphones while jogging outside. The wearing of headphones and earphones when jogging on Department of Defense (DOD) installations is prohibited.

(6) Obey all traffic signals and/or stop signs; use pedestrian crosswalks when crossing roads.

(7) Challenging or obstructing vehicular traffic is forbidden.

(8) Wear proper footwear.

(9) Maintain proper physical conditioning and flexibility.

h. Hiking. This is a very popular sport in Korea. However, it can be very dangerous if you're not properly prepared. Stop and ask yourself the following questions.

(1) Do I have proper clothing, footwear, equipment, food and water?

(2) Am I proficient in outdoor skills?

(3) Am I familiar with the terrain and weather conditions?

(4) Am I physically fit for the challenges ahead?

(5) Do I know my limitations and the limitations of my group?

(6) Remember:

(a) Know your limits. Hiking is far more demanding than walking the same distance on level ground.

(b) Check the weather forecast before starting. Turn back if the weather gets bad.

(c) Tell someone where you're going and when you expect to return. Don't change plans or routes without notice.

(d) Never separate your group. Do not hike alone. All trail objectives should be attainable by all members of a group.

(e) Never pick up or intentionally disturb unexploded explosive objects.

(7) Suggested clothing and equipment: light plastic tarp, hiking boots, socks, rain and wind parka or space blanket, shorts, rain pants or chaps, gloves or mittens, T-shirt, extra socks, medications, flashlight, guidebook, compass, map, watch, personal hygiene items, first aid and repair kit, insect repellent, gaiters, water bottle, sunglasses, cap, food, sun lotion, pocket knife, matches, trash bag, pack, cord, cell phone, GPS.

(8) Add for overnight trips: sleeping bag, foam pad, tent or other shelter, stove, fuel, pots, cup, bowl, spoon, food, towel, extra clothing, etc.

7. VEHICLE OPERATIONS. Driving in Korea is a little different.

a. Vehicle Preparation for Hot Weather.

(1) Whether driving a privately owned vehicle (POV) or a government motor vehicle (GMV), the first consideration for warm weather driving is vehicle preparation. In order to deal with the unexpected, pack a small emergency kit to contend with common highway problems. As a minimum, a well stocked kit should include a flashlight, flares or warning reflectors, an assortment of basic tools, utility tape, first aid supplies, jumper cables, extra fuses, spare fan belt, quart of oil, jug of water, and work gloves. Performing some preventive maintenance also makes sense before hitting the highway on your way to work or play.

(2) Use the checklist below to prepare your POV for the hot weather driving ahead. If driving a GMV, follow the military unique maintenance checklist provided by your motor pool.

(a) Check oil levels, topping off or changing them; replace oil, air, and fuel filters as necessary.

(b) Inspect the cooling system for leaks and other potential problems. Look for cracked hoses and loose hose clamps; replace hoses that feel spongy.

(c) Examine fan belts to make sure they are properly adjusted and in good condition. Frayed belts are a sign of slippage, which can contribute to overheating and low battery charge.

(d) Inspect your battery, as well as its cables and connections. Loose connections and corroded terminals may prevent a car from starting or charging properly.

(e) Ensure the master cylinder's fluid level is correct and your braking system is working properly.

(f) Check condition of windshield wipers and replace them if needed, and refill the windshield washer reservoir. Along with the summer rains, there is the bug-splattered windshield to contend with.

(g) Buy a high quality air pressure gauge and use it! Tire pressure is important for good performance and long wear. Studies show that moderate (8-10 lbs) under inflation may cut tire life by as much as 25 percent. Good shocks, proper alignment and balance also add to tire life as well as safe operation.

(h) Be sure your spare tire is fully inflated and in good condition, and all necessary tire changing tools are on hand.

(i) Keep your vehicle in shape! Before a trip and at regular intervals, give your vehicle a safety check and if you need repairs, make them. Check the following basic items for proper working conditions:

- *Both sets of brakes*
- *Rear and side mirrors*
- *Windshield wipers*
- *Steering mechanism*
- *Horn*
- *Exhaust system*
- *Essential tools*
- *Tires (pressure & tread)*
- *Lights (head, tail, brake)*
- *Safety belts*

b. Hot Weather Driving Hazards.

(1) During the summer months, there is increased vehicular traffic as more people venture out to the many historical sights in Korea. With increased traffic congestion comes the need for closer adherence to safe and defensive driving practices.

(2) Heavy rains, poor roads and soft shoulders increase the driving hazards. There is also a huge increase in all types of road and pedestrian traffic. Agricultural equipment such as tractors and handcarts may be encountered during the summer months. Most of this farm equipment is not equipped with warning lights or turn signals. The warm weather also brings pedestrians and children out in greater numbers. Many bicyclists and joggers will also be using the roads, both on and off post.

(3) Mental Preparation for Hot Weather Driving. Be ready for any emotional or physical conditions that may impair your driving or reaction skills. Examples are--

(a) In too much of a hurry - slow down!

(b) Tired - stay within your abilities.

(c) Daydreaming - keep your mind on the task at hand.

(d) Irritated - resolve irritations before attempting to drive.

(e) Boredom - take frequent breaks.

(f) Do not drink and drive under any circumstance.

(g) Restraint - use seat belts; they save lives.

(h) Control yourself. Self control and mental alertness are indispensable for driving in crowded road conditions.

(4) Drive Defensively. You do not have control over the unpredictable actions of pedestrians, other vehicle operators, or road conditions. Develop a defensive attitude for these possibilities. Anticipate the unusual and expect the unexpected.

(a) Pedestrians. Operating vehicle in Korea is challenging. Narrow streets, overcrowded roads, bicycles, motorcycles, and pedestrians make every trip hazardous. These conditions require maximum attention by all drivers. Pedestrians enter the street from every conceivable location. Yield the right of way and wait for them to clear the road. Most pedestrians fail to look before they attempt to cross a road.

(b) Children. There is a still a shortage of playgrounds for children in many places in Korea. Often the only place for them to play is alongside or in roads and streets. Expect children to dart into your path as you drive. Also, Korean children are taught to raise their hand prior to entering the street and crossing--then off they go. You must recognize this signal and look out for these occurrences.

(c) Buses. This is one of the primary methods of mass transportation in Korea. Bus drivers attempt to fulfill a rigid time schedule; therefore, they speed, pass improperly, and operate overloaded in order to meet the schedules. Buses will often stop in the middle of the street in order to pick up or discharge passengers or pull sharply into or away from the curb directly into the path of an oncoming vehicle. These actions must be anticipated and preparations made to avoid accidents in these dangerous situations.

(d) Taxies. Korean taxi drivers are frequently very aggressive and will violate traffic laws in order to pick up a passenger or to reach destinations as rapidly as possible. They work long hours and, as a result of fatigue, may be bad tempered and erratic in their driving behavior. Stay out of their way and give them an extra margin of safety at all times. Some taxi drivers will discharge their passenger in the middle of the road. Maintain a high state of situational awareness and be prepared for the unexpected.

(e) Roadways.

(1) Despite rapid expansion and improvement of road networks in Korea, the increase in the number of vehicles has been even faster. Overcrowded conditions and traffic mix (cars, trucks, bicycles, motorcycles, and pedestrians) make the highways dangerous and increase the potential for accidents.

(2) Roads are narrower than we are accustomed to and have many blind curves and sharp turns. In villages, houses may be built so close to the road that when a person steps out of the door they are very close to being in the street. Most intersections and danger points lack traffic control or warning signs. Thus, extreme care must be exercised when transiting built-up areas.

(3) Often, rural roads are used for work and storage areas. It is not unusual for farmers to dry grain and other vegetables on one lane of a country road. Be prepared for these eventualities by always operating at speeds that will allow ample reaction time.

(4) Railroad crossings in rural areas are not always guarded. Be alert for unguarded crossings.

(5) During the rainy season (June through September) drivers must expect frequent flooding, soft shoulders, and traffic delays. Plan your trip accordingly.

SECTION IV. FALL AND WINTER.

1. GENERAL. During the winter months, many USFK personnel participate in a variety of outdoor activities. Regardless of which activity is chosen (skiing, sledding, camping, snowboarding, etc.), it is important to take the time to recognize the risks involved, whether on or off duty, on or off post.

a. The history and lessons of weather and war are enduring. Military organizations have suffered as much damage from cold weather as from the enemy. One classic example is the retreat of Napoleon's forces from Russia during 1812 –1813. Pursued by a relentless enemy, surrounded by the hostile cold weather, staggering onward without food, water, rest, adequate clothing or footwear, thousands of troops suffered from frostbite or froze to death.

b. Another example is the suffering of our Revolutionary soldiers at Valley Forge during 1777-1778. Only two-thirds of the soldiers of the Continentals who began their winter at Valley Forge remained in the ranks when the spring came. Of those left, half were unfit for duty.

c. In the Civil War and World War I, soldier losses to cold weather injury were low due to the winter months quartering practices. However, the forces fought the winter campaigns hard in World War II and troop losses to cold weather injuries were high. Trench foot and frostbite seriously weakened the fighting strength of the U.S. divisions.

d. Among U.S. Army and Air Force troops, there were over 90,000 cold weather injuries requiring medical treatment during World War II and another 10,000 during the Korean War accounting for 10% of all casualties experienced during these conflicts. During the War in Korea, cold weather injuries struck as decisively as the Chinese Army.

e. Given that the average air temperature recorded when cold injuries were experienced during World War II was 30°F and that temperatures this low are experienced over about 60% of the earth's surface, leaders must appreciate cold-weather effects on their personnel's health and performance. Prevention of cold injuries is the responsibility of commanders at all levels.

f. Cold weather continues to be a hostile environment for military activities but cold weather injuries are unnecessary. With a little advance knowledge and preparation, cold weather injuries such as hypothermia, frostbite, trench foot, dehydration, and carbon monoxide poisoning can be avoided during cold weather exercises.

g. Every one is essential for success in the battles of the next war. We cannot afford to allow cold weather injuries or winter accidents to sap our strength. Strong leadership and intense training are required to maintain a high state of readiness in winter warfare techniques. Be prepared to Fight and Win in the winter!

2. PHYSICAL CONDITIONING.

a. Physical conditioning is the greatest single factor that will assist the body in combating cold weather injuries. Well-built bones and well-toned muscles along with good coordination will prevent slips, falls, sprains and fractures inherent to cold weather and snow. A proper diet will aid the heat-generating properties of the body.

b. Every winter numerous individuals die of heart attacks by engaging in strenuous activities like shoveling snow. This unaccustomed labor puts sudden stress on the body's circulation system plus the exposure to cold weather raises the blood pressure that could lead to a heart attack. Be careful not to overexert yourself during the winter months.

3. WINTER HAZARDS--GENERAL CONCERNS.

a. Whether at work or play, a variety of hazards exist during the winter season that increase risks for everyone. Low temperatures increase the potential for cold related injuries. However, by using the RM process to identify the risks associated with a given activity, appropriate actions can be taken to prevent cold-weather related accidents and ensure an accident-free winter season.

b. Cold injuries plague any unit that is improperly equipped or improperly prepared for cold weather operations. The equipment you need to prevent cold weather injuries is in your organizational inventory and should be used. Preparation for cold weather operations involves advance planning by leaders, individual compliance, and supervisory follow-through.

c. Commanders/leaders must be aware that if a service member complains of being unusually cold, there could be a cold weather injury in progress. Ignoring this symptom could result in eventually losing a service member from the mission. Inspections and constant follow-ups are extremely important if continued exposure to cold weather cannot be avoided. No one should go unwatched for any long period of time. Early detection of cold weather injuries is the only way to save fingers and toes and keep a service member mission ready.

d. The winter months are serious business -- with many hidden dangers/hazards. The information included in this pamphlet describes the causes and symptoms of these dangers/hazards. It describes how to prevent and/or treat injuries if they occur. Proper use and care of cold weather gear is also covered. Knowing how to care for and wear your cold weather uniform will go a long way toward preventing cold weather injuries. Protect yourself by being prepared and aware.

e. Road and weather conditions make travel extremely hazardous during the winter months. Listening to your local television and radio stations can be extremely helpful. Current weather information, road conditions, travel advisories, cancellation of social and business functions, and school closings/delays are available through the media.

f. DOD has a mandatory seat belt law. If your vehicle goes off the road due to cold weather problems your seat belt will keep you in place, assist you in maintaining and/or regaining control of your vehicle, and possibly prevent you from sustaining a serious injury.

g. Remember -- winter hazards can be found all around you. Some are obvious, and some are hidden. It is up to you to know the warning signs and to heed them.

4. COLD WEATHER INJURIES AND TREATMENTS.

a. Chilblain.

(1) Chilblain is a nonfreezing cold injury which, while painful, causes little or no permanent impairment. It appears as red, swollen skin, which is tender, hot to the touch, and may itch. This can worsen to an aching, prickly ("pins and needles") sensation, and then numbness. It can develop in only a few hours in skin exposed to cold weather.

(2) Treatment. Prevent further exposure. Remove wet and/or constrictive clothing. Wash and dry injury gently. Elevate, cover with layers of loose warm clothing and allow re-warming. (Pain and blister may develop). Do not pop blister, apply lotions or creams, massage, expose to extreme heat, or allow victim to walk on injury. Refer for medical treatment.

b. Frostbite.

(1) Frostbite is the freezing of any part of the body exposed to temperatures of 32 degrees Fahrenheit or below. The first symptom is usually an uncomfortable aching sensation, tingling, or stinging. If the condition is allowed to continue, numbness sets in. On Caucasian skin it will initially turn red and later becomes pale gray or waxy white.

(2) The effects of frostbite range in severity from first degree (the least serious case) to fourth degree (the most severe case). In simple frostbite, the skin becomes spotted, bluish or red, and hot and dry after re-warming. Often there is intense itching or burning and later a deep-seated ache. Within a few hours there may be swelling, which may remain for several days. Then the skin begins to peel off and may continue to do so for as long as a month.

(3) In more serious cases of frostbite, clear blisters may appear a few hours after re-warming. When they dry, dark scabs form, which eventually separate and reveal open sores. Healing may take several months. The most severe cases of frostbite involve complete gangrene and loss of body tissue and bone. Sometimes amputation of the affected part is necessary.

(4) Treatment.

(a) Frostbite injuries attack in two stages: superficial and deep. Treatment depends on the degree of frostbite injury. You can decide how severe the frostbite has become by finding out how long the body part has been without feeling. If the time is very short, the frostbite is probably superficial. Otherwise, you should assume the injury is deep, and therefore serious.

(b) In cases of superficial frostbite, warm the affected area by going indoors where it's warm. If you can't do that, cover your cheeks, nose, or ears with your warm hands until the pain returns. Then place your frostbitten hands under your armpits, next to your bare skin. Don't re-warm the frostbitten areas by massaging; exposing to open fires, exhaust pipes, cold water soaks; or rubbing with snow. Be prepared for pain when the area thaws out.

(c) In cases of deep frostbite, don't attempt to treat the frostbite in the field. Get to a hospital or aid station as quickly as possible. If transportation is available, don't walk. Protect the frozen part from further injury, but don't try to thaw it by rubbing, bending, or massaging. Don't soak the frozen body part(s) in either cold or warm water. Don't rub with snow. Don't expose the body part(s) to hot air, engine exhaust, or open fires. Don't use ointments or salves.

(d) Thawing out in the field increases pain, may lead to infection and could cause greater damage and gangrene. If the feet are deeply frostbitten, there is less danger involved in walking on the feet while they are frozen than there is in walking on them after they have thawed out. Although thawing out the frozen part is not recommended, the rest of the body should be kept warm.

(5) Prevention.

(a) It's a lot easier to prevent frostbite or to stop it in its early stages, than to thaw out and care for the badly frozen flesh. Wear sufficient clothing. Avoid wearing clothing that interferes with your circulation. Tight fitting shoes, socks, and hand wear are especially dangerous. Keep dry, and avoid becoming wet from perspiration.

(b) Exercise your face, fingers, and toes to keep them warm. Use the buddy system. You should always travel with a buddy in extreme cold weather so that each person can watch for white spots (one of the first signs of frostbite) on the face and neck of his buddy. Numbness is also a sign that frostbite has occurred. You can apply first aid to mild frostbite. However, you should not try to treat frostbite in the field. Get medical aid as soon as possible.

c. Trench Foot.

(1) Trench foot is just as nasty as it sounds. It's a cold weather injury resulting from exposure to a cold, damp environment and is an injury that can disable you. It is caused by prolonged standing in water, insufficient clothing, and having wet socks and boots for hours while the temperature is just above freezing. The injury normally occurs when temperatures range between 32 and 50 degrees Fahrenheit. However, trench foot injuries can occur at any point on the wind chill chart and are much more likely to occur than frostbite at "LITTLE DANGER" wind chill temperatures, especially on extended exercises/missions and/or in wet environments. Trench foot can lead to permanent disability, just like frostbite.

(2) In the early stages of trench foot, the feet and toes are pale, numb and stiff. Walking becomes difficult. In later stages, the feet and toes become red, swollen, and warm. In cases of extreme injury, the body flesh dies and amputation may become necessary.

(3) Prevention is important because the feet are more vulnerable to cold weather than other parts of the body. Cold weather attacks feet most often because they get wet easily (both externally and internally from perspiration) and because circulation is easily restricted. Footgear is therefore one of the most important parts of cold weather clothing.

(4) The rule of wearing clothing loose and in layers also applies to footgear. The layers in boots are made up by the boot itself and by the socks. If blood circulation is restricted, the feet will be cold. Socks, worn too tightly, might easily lead to freezing of the feet. For the same reasons, avoid lacing your footgear tightly.

(5) Treatment.

(a) Whenever your feet get wet, dry them as soon as possible and put on a dry pair of socks. Also wipe the inside of your boots as dry as possible. Exercise your feet by stomping, double-timing a few steps back and forth, and flexing and wiggling your toes inside your boots. These exercises require muscular action, which produce heat, and will help keep your feet warm. Massage your feet when you change your socks.

(b) If you do develop trench foot, handle your feet very gently. Do not rub or massage them. Wash them carefully with a mild soap and water. Dry and elevate your feet. Leave them uncovered and at room temperature. Do not walk on your injured feet. Seek medical attention.

d. Hypothermia.

(1) Another non-freezing injury is hypothermia. It is an abnormally low body temperature. Hypothermia is not always associated with cold weather but it can occur when you get wet. A plunge in cold water or a sudden drenching rain can bring it on. It can be fatal and is called "death from exposure."

(2) Hypothermia stalks its victim in 30 to 50 degree weather. It is the number one killer of persons engaging in outdoor recreational activities and can be a major killer of troops involved in winter training. Hypothermia is a serious threat in cold-weather operations. Many leaders and troops who are quick to recognize symptoms of frostbite may not know as much about hypothermia.

(3) Hypothermia is a condition involving the rapid, progressive mental and physical collapse that accompanies chilling of the vital body organs. It is caused by exposure to any combination of cold, wetness, and wind and is aggravated by exhaustion.

(4) Treatment. The treatment of hypothermia consists of reducing the heat loss from the victim's body and adding heat to the victim's system. Sometimes the conscious, shivering victim is only mildly hypothermic and can be helped immediately when removed from the chilling environment. Do the following to re-warm the mildly hypothermic victim:

(a) Remove him/her from the cold environment and if possible, get them to a sheltered area.

(b) Replace the victim's wet clothes with warm dry ones.

(c) Apply moderate heat to the whole body (using a room heater or, if possible, a warm shower).

(d) Cover him/her with blankets and other warming and insulating materials. Or put the victim in a pre-warmed sleeping bag, along with canteens of heated water or with another person.

(e) Give the victim hot, nonalcoholic drinks and avoid caffeine items which narrow the blood vessels.

(5) Prevention. Take action to prevent overexposure. Here's how--

(a) Stay dry. Wet clothes lose 90 percent of their insulating value. Choose rain clothes that have proven effective against wind-driven rain. Cover your head, neck, body, and legs.

(b) Beware of the wind. A slight breeze carries heat away from bare skin much faster than still air. Wind drives cold air under and through clothing. Wind refrigerates wet clothes by evaporating moisture from the surface. Wearing two-piece woolen underwear, or long wool pants and sweater or shirt, and a knit cap to protect neck and chin are the best type of clothing in hypothermia weather.

(c) Understand cold weather. Most hypothermia cases develop in air temperatures between 30 and 50 degrees. Many people underestimate the danger of being wet in such temperatures -- with fatal results. The cold that kills is cold water running down neck and legs, cold water held against the body by sopping wet clothes and cold water flushing body heat from the surface of the clothes. Don't ask, "How cold is the air?" Instead ask, "How cold is the water against your body?"

(d) End exposure. If you can't stay dry and warm under existing weather conditions, get out of the wind and rain. Build a fire. A storm proof tent gives the best shelter. Never ignore shivering. Persistent or violent shivering is a clear warning that you are on the verge of hypothermia.

(e) Avoid exhaustion. Make camp before you get tired. Remember, exposure greatly reduces your normal endurance.

(f) Use the buddy system. Don't go out alone. Members of squads and patrols should watch each other for the warning signs of hypothermia and take actions as needed. Take heed of "hypothermia weather." Choose equipment with hypothermia in mind. Watch carefully for warning symptoms. Watch for uncontrollable fits of body shivering; slurred or vague, slow speech; incoherence; lapses in memory; immobile, fumbling hands; frequent stumbling or lurching gait; drowsiness; apparent exhaustion; and inability to sit up after a rest.

e. Dehydration. The loss of water from the body occurs in cold weather as well as in hot climates. Personnel bundled up in many layers of clothing cannot feel perspiration forming as their clothes readily absorb the perspiration. However, the loss of liquids and salt does occur. The difficulty in obtaining water in the winter months often is given as a reason for omitting consumption of water. Dehydration will decrease an individual's effectiveness and lead to fatigue. Always drink plenty of water during winter activities/operations.

f. First aid factors for frozen body tissue.

(1) Do not let personnel continue with their usual duties/activities until a doctor can determine severity.

(2) No smoking or alcohol (affects blood flow adversely).

(3) No ointments or salves. Do not open blisters.

(4) For lower extremity damage, treat as litter case. If victim must walk, do not thaw feet. Help victim get to medical aid.

(5) Thaw frozen tissue as rapidly as possible in bath water with controlled temperature of 104 degrees Fahrenheit (no more than 109 degrees Fahrenheit). Do not rush thawing with hot, quick heat.

(6) If you cannot use water, warm with skin-to-skin contact with another part of the body.

(7) Do not put personnel in warm bath water if already thawing from room heat, and do not keep body in the water beyond the thaw.

(8) Clothing should be carefully removed from area injured. Cover the injury with a blanket or loose clothing.

(9) First aid should be performed at the scene or on the way to the medical facility. Immediately take the individual to a doctor.

5. PREVENTION OF COLD WEATHER INJURIES.

a. Prevention of cold injuries is the responsibility of commanders at all levels.

b. Shelter from the elements is secondary only to defending against enemy actions. Personnel must eat and drink more food and water than normal and must also be prepared for sudden weather changes.

c. Establish a buddy system within the unit to increase unit cohesiveness by minimizing the sense of isolation that individuals may experience during cold weather. Avoid cold injuries by using the buddy system and frequent self-checks, especially when individuals are not active or their duties require them to remove their gloves.

d. Immediately treat persons showing any sign/symptom of a cold injury. Be aware that sick, injured, and wounded individuals are very susceptible to cold injuries.

e. Each troop should carry an individual cold weather survival kit at all times.

f. Drivers and passengers should always have a sleeping bag and extra cold-weather clothing when traveling by vehicle away from the unit bivouac location.

g. Plan for the cold.

(1) Use your medical practitioners and occupational health personnel to train individuals and their leaders in PM measures against cold. Obtain weather forecast for time/area of training/mission. Ensure the following are available as the operating conditions permits:

(a) Covered vehicles for personnel transport, if operating conditions permits.

(b) Cold weather clothing.

(c) Warming tents/areas.

(d) Hot rations/hot beverages.

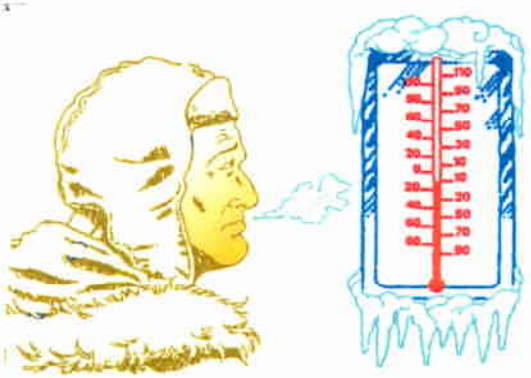
(e) Drinking water.

(2) Inspect service members (before starting training/mission) to ensure--

(a) Availability, proper fit, and wear of cold weather gear.

(b) Clean, dry, proper-fitting clothing.

(c) Each service member has several pairs of socks, depending on the nature and duration of the mission.



(d) Guards or other service members performing inactive duties are rotated frequently.

(e) Medical support is available for treatment should cold weather injuries occur.

(3) Determine and use wind chill factor. Obtain temperature and wind speed information as directed by your unit's SOP or contact the local supporting PM detachment or weather section.

Table 7. Wind Speed MPH.

Temperature in degrees Fahrenheit	Calm	5	10	15	20	25	30	35	40	45	50	55	60
	40	36	34	32	30	29	28	28	27	26	26	25	25
	35	31	27	25	24	23	22	21	20	19	19	18	17
	30	25	21	19	17	11	15	14	13	12	12	11	10
	25	19	15	13	11	9	8	7	6	5	4	4	3
	20	13	9	6	4	3	1	0	-1	-2	-3	-3	-4
	15	7	3	0	-2	-4	-5	-7	-8	-9	-10	-11	-11
	10	1	-4	-7	-9	-11	-12	-14	-15	-16	-17	-18	-19
	5	-5	-10	-13	-15	-17	-19	-21	-22	-23	-24	-25	-26
	0	-11	-16	-19	-22	-24	-26	-27	-29	-30	-31	-32	-33
	-5	-16	-22	-26	-29	-31	-33	-34	-36	-37	-38	-39	-40
	-10	-22	-28	-32	-35	-37	-39	-41	-43	-44	-45	-46	-48
	-15	-28	-35	-39	-42	-44	-46	-48	-50	-51	-52	-54	-55
	-20	-34	-41	-45	-48	-51	-53	-55	-57	-58	-60	-61	-62
	-25	-40	-47	-51	-55	-58	-60	-62	-64	-65	-67	-68	-69
	-30	-46	-53	-58	-61	-64	-67	-69	-71	-72	-74	-75	-76
	-35	-52	-59	-64	-68	-71	-73	-76	-78	-79	-81	-82	-84
	-40	-57	-66	-71	-74	-78	-80	-82	-84	-86	-88	-89	-91
	-45	-63	-72	-77	-81	-84	-87	-89	-91	-93	-95	-97	-98

NOTE: To calculate the wind chill index for combinations of temperature and wind other than those given in the table above, you can use the formula indicated on the following page:

Wind chill (°F) = $35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$
Where V = Wind speed in miles per hour and T is the air temperature in degrees Fahrenheit

REMEMBER! Cold weather injuries result from prolonged exposure to cold weather. The wind is a big factor in cold weather injuries. Body heat is lost by reducing the thin layer of warm air next to the skin, which causes cold weather injuries. The loss of body heat increases as wind speed increases.

Table 8. Preventive Medicine Measures.

Wind Chill	Preventive Medicine Measures
30° F and Below	Alert personnel to the potential to cold injuries.
25° F and Below	Leaders inspect personnel for wear of cold weather clothing. Provide warm-up tents/areas/hot beverages.
0° F and Below	Leaders inspect personnel for cold injuries; increase the frequency of guard rotation to warming areas. Discourage smoking.
-10° F and Below	Initiate the buddy system; have personnel check each other for cold injures.
-20° F and Below	Modify or curtail all but mission-essential field operations.

h. Protect your body.

(1) Humans protect themselves from cold primarily by avoiding or reducing cold exposure using clothing and shelter. When this protection proves inadequate, the body has biological defense mechanisms to help maintain correct body temperature. The body's internal mechanisms to defend its temperature during cold exposure include vasoconstriction and shivering. When these responses are triggered, it is a signal that clothing and shelter are inadequate.

(2) Vasoconstriction is the tightening of blood vessels in the skin when it is exposed to cold. The reduced skin blood flow conserves body heat, but, as described earlier, can lead to discomfort, numbness, loss of dexterity in hands and fingers, and eventually cold injuries.

(3) Shivering increases internal heat production that helps to offset the heat being lost. Internal heat production is also increased by physical activity, and the more vigorous the activity, the greater the heat production. In fact, heat production during intense exercise or strenuous work is usually sufficient to completely compensate for heat loss, even when it is extremely cold. However, high intensity exercise and hard physical work are fatiguing, can cause sweating, and cannot be sustained indefinitely. Moreover, most military occupational activities are less vigorous than high-intensity exercise, so internal heat production will probably not be adequate to offset heat loss.

(4) Susceptibility to cold injuries can be minimized by maintaining proper hydration and nutrition; avoiding alcohol, caffeine, and nicotine; and minimizing periods of inactivity in cold conditions. Minimize the risk of cold injuries in fighting positions, sentry points and observation points by placing pads, sleeping bags, tree boughs, etc., inside these positions to allow occupants to insulate themselves from the ground or snow. High levels of physical fitness are also beneficial for troops participating in cold weather operations.

(5) Humans do not acclimatize to cold weather nearly as well as they can acclimatize to hot weather, although repeated cold exposure does produce what is referred to as habituation. Proper training before deploying into cold weather regions is more important for prevention of cold injuries than repeatedly being exposed to cold temperatures.

(a) Following habituation, shivering is much less vigorous. This is advantageous because shivering is inefficient and most of the heat produced is lost. Shivering can also interfere with sleep, causing fatigue.

(b) With habituation to repeated cold exposure, humans adjust mentally and emotionally. Training outdoors in cold weather before deployment will help build confidence in service members' abilities to physically, mentally, and emotionally contend with the stress of cold weather conditions.

(6) Uniforms.

(a) A good memory device for the use and care of your uniform is the word "COLDER."

C Keep clothing Clean.
O Avoid Overheating.
L Wear clothing Loose and in layers.
D Keep clothing as Dry as possible.
E Examine it for holes, tears, and broken fasteners.
R Repair or replace damaged clothing

And always follow the instruction labels in your clothing.

(b) A standard number of clothing layers cannot be prescribed for universal wear, but the following principles are recommended to protect against injuries:

((1)) Wear enough layers of clothing to allow flexibility for local weather changes. Several layers of medium-weight clothing should provide more insulation than one piece of heavy clothing. Layers of clothing trap air between the clothes, and this is what adds to the insulation's effectiveness.

((2)) Wear clothing loosely so that the blood circulation is not restricted. Therefore, as your body heats up during physical activities, you can remove the excess layers of clothing.

((3)) Keep clothing clean; dirt and grease clog the air spaces and reduce insulation. Repair torn clothing and avoid wearing wet clothes that prevent the loss of insulation.

((4)) Wear clothing and footgear loosely to allow good blood circulation, and to provide the necessary ventilation for insulation of your clothing.

((5)) Protect your hands with mittens or gloves. Mittens are more protective than gloves. Do not touch metal or other cold objects with your bare hands.

(c) Wear uniform properly.

((1)) Wear the clothing your commander and leaders direct.

((2)) Wear clothing in loose layers (top and bottom).

((3)) Keep clothing clean and dry. Remove or loosen excess clothing when working or in heated areas to prevent sweating.

((4)) Wear headgear to prevent body heat loss. The body loses large amounts of heat through the head.

((5)) Avoid spilling fuel or other liquids on clothing or skin. Evaporating liquids increase heat loss and cool the skin. Also, liquid stains on clothing will reduce the clothing's protective effects.

((6)) Change wet/damp clothes as soon as possible. Wet/damp clothing pulls heat from body.

(d) Keep your body warm.

((1)) Keep moving, if possible.

((2)) Exercise your big muscles (arms, shoulders, trunk, and legs) frequently to keep warm.

((3)) If you must remain in a small area, exercise your toes, feet, fingers, and hands.

((4)) Avoid the use of alcohol as it makes your body lose heat faster.

((5)) Avoid standing directly on cold, wet ground when possible.

((6)) Avoid tobacco products. The use of tobacco products decreases blood flow to your skin.

((7)) Eat all meals to maintain energy.

((8)) Drink plenty of water and/or warm nonalcoholic fluids. Dark yellow urine means you are not drinking enough fluids! You can dehydrate in cold climates too! ***REMEMBER:*** *Cold weather injuries result from prolonged exposure to cold weather. The wind is a big factor in cold weather injuries. Body heat is lost by reducing the thin layer of warm air next to the skin, which causes cold weather injuries. The loss of body heat increases as wind speed increases.*

((9)) Buddies should monitor each other for cold weather injury.

((10)) The wind chill index gives the equivalent temperature of the cooling power of wind on exposed flesh.

((11)) Any movement of air has the same effect as wind (running, riding in open vehicles, helicopter downwash, prop wash, or jet blast).

((12)) Any dry clothing (mittens, scarves, masks) or materials which reduce wind exposure will help protect the covered skin.

(e) Identify special considerations. Conditions that place service members at high risk of cold injuries include--

((1)) Previous trench foot or frostbite.

(2) Fatigue.

((3)) Use of alcohol.

((4)) Significant injuries.

((5)) Poor nutrition.

((6)) Use of medications that cause drowsiness.

((7)) Little previous experience in cold weather.

((8)) Immobilized or subject to greatly reduced activity.

((9)) Service members wearing wet clothing.

((10)) Sleep deprivation.

((11)) Identify the special hazards of carbon monoxide poisoning and fire that may affect your cold weather operations.

(f) Enforce individual preventive medicine measures.

((1)) Ensure service members wear clean and dry uniforms in loose layers.

((2)) Ensure service members remove outer layer(s) of clothing before commencing hard work, particularly when in well-heated areas.

((3)) Have service members inspect their socks/feet at least daily when operating in cold and/or wet environments

((4)) Ensure service members wash their feet daily, wear clean and dry socks, and use warming areas when available

((5)) Ensure service members eat all meals to ensure sufficient calories are consumed to maintain body heat.

((6)) Ensure service members drink plenty of water and/or nonalcoholic fluids. Fluid intake is often neglected, which leads to dehydration.

((7)) Ensure service members exercise their big muscles or at least their toes, feet, fingers, and hands to keep warm.

((8)) Institute the buddy system in cold weather operations. Service members taking care of each other decrease cold injuries.

(g) Protect your feet.

((1)) Be aware of proper footwear and care. Your feet are the hardest parts of your body to keep warm and dry under cold weather conditions. Protect them! Insulated boots or cold weather packs with felt liners offer the best protection.

((2)) When you are active, your feet sweat. Because of the waterproof rubber lining in most boots, the moisture remains either in your socks or the bottom of the boot. Even if your feet are damp, they will stay warm because the body heat is trapped inside the insulated boots.

((3)) If you wear your boots for a long period, you may notice that your feet have become white and wrinkled. There is no reason to be alarmed. This effect will disappear if you dry and warm your feet and put on dry socks.

((4)) Avoid prolonged exposure of your feet to cold weather. Personnel are protected with insulated rubber combat boots and socks but still sustain cold weather injuries to their feet. Perspiration and inactivity while exposed to cold weather usually causes feet injuries.

((5)) Feet should be washed, dried and dusted with a dry, antifungal powder (NSN 6505-01-008-3045) daily. Change socks whenever they become wet from exposure to rain, snow, or from sweat. This may require changing into dry socks at least 2-3 times daily. Extra socks can be air-dried and then carried under BDU's to warm.

((6)) The insulation in your boots must be kept dry if they are to protect your feet. Inspect them often and repair any holes or punctures inside or outside of the boot immediately. Patching the hole with any kind of tape can make temporary repairs. Chewing gum makes a good temporary patch. You should seal any holes as quickly as possible to prevent the insulation from becoming wet.

((7)) The arctic overshoes can be worn over your leather boots in wet or muddy terrains. However, overshoes are neither as warm nor as dry as the insulated boots.

((8)) Neither the insulated boot nor any other boot will keep your feet from becoming cold or freezing if you remain motionless and inactive for long periods. The key is activity. Exercises such as knee bends, stamping your feet, running in place or wriggling your toes will help keep your feet warm. Also, elevate your feet whenever possible to aid in the circulation of the blood.

(h) Protect your hands.

((1)) There are two kinds of hand wear for use in wet cold weather conditions -- the black leather gloves with wool inserts and the trigger finger mitten with wool mitten inserts.

((2)) Use the black leather gloves when you have to use your fingers. Use them alone in milder weather or put the wool inserts in for colder temperatures. The inserts are interchangeable and can be worn on either hand. Never wear the inserts alone. Inserts should be changed when they become damp. The inserts should be washed in lukewarm soapy water and squeezed rather than rubbed or scrubbed. All soap must be rinsed out.

((3)) In both wet and dry cold weather conditions, wear the trigger finger mittens with the wool inserts. The mittens and the glove inserts are cared for in the same manner as stated above. If the mittens get wet, dry them slowly – away from extreme heat. Should the leather become stiff, work it gently with your fingers until the leather softens.

((4)) You should avoid prolonged exposure of your bare hands and wrists; this could results in stiffening and reduced circulation in the hands. Such exposure requires a length of time to recondition the hands for normal use.

((5)) Keep your hands covered. When they get cold, place them inside your clothing under your armpits, next to your stomach or in your crotch to warm them. Major blood vessels run over the back of your hands. If you warm the back of your hands first, you can warm your hands much quicker. You can also warm your hands by clenching and unclenching them in your mittens or by swinging your arms from your shoulders in a circle. A short run (especially in deep snow) usually warms the body enough to restore circulation to the hands.

*((6)) **NEVER** place your hands or your bare flesh on metal in extreme cold weather. Do not touch metal, snow or other cold objects with your bare hands. Touching metal can give you a cold weather burn (immediate freezing of the flesh that came in contact with the cold-soaked metal) as bad as if you had placed your hand on a hot stove. Snow getting into your glove and not being removed immediately can cause injuries.*

((7)) Do not wear gloves or mittens that are too tight and restrict your circulation. Tight-fitting sleeves (especially under the armpits) will restrict circulation and cause your hands to become numb and stiff.

(i) Protect your face and ears

((1)) Cover your face and ears with a scarf or other materials, if available.

((2)) Wear your insulated cap with flaps down or wear a balaclava and secure under your chin.

((3)) Warm your face and ears by covering them with your hands. Do not rub your face and ears.

((4)) Do not use camouflage when wind chill is -10 degrees Fahrenheit or below; it prevents detection of cold weather injury (frostbite).

(j) General guidance for all cold-weather physical training (PT).

((1)) Responsibilities. Cold weather injury prevention is a command responsibility. Unit non-commissioned officers are responsible for the health and safety of their troops and must set the example in how to conduct PT in the cold. Soldiers are responsible for preventing individual cold injuries.

((2)) PT can be conducted outside during inclement weather. However, leaders should consider conducting PT indoors when severe environmental conditions exist. PT should not be conducted outside under the following conditions:

((a)) Extensive ice on roads, which can cause the potential risk for significant injury

((b)) Limited visibility due to extremely heavy rain or fog.

((3)) PT at or below 0 °F ambient air temperature or 0 °F wind chill should be considered high-risk training. Unit commander must be advised to conduct risk assessment for training under these conditions.

((4)) Unit commander should be advised of specific additions to the standard PT uniform (e.g., black stocking cap, gloves, balaclava, neck gaiters, etc.) based on the weather requirements.

((5)) First-line leaders must carefully monitor individual uniform modifications in extreme weather.

((6)) Minimum cold weather PT uniform guidance should correspond to the wind chill categories as below.

Table 9. Cold Weather Clothing.

Cold Weather Risk	PT Uniform Guidance
Little Danger	PFU, sweat top and bottom, black knit cap, black gloves with inserts, neck gaiter.
Increasing Danger	PFU, sweat top and bottom, polypropylene top and bottom, balaclava, trigger finger mittens.
Great Danger	Add ECWCS* Mittens, parka.

* ECWCS – Extended Cold Weather Clothing System
* Source: http://chppm-www.apgea.army.mil/coldinjury/PhysicalTrng.doc

6. WINTER WEAPONS SAFETY.

a. Cold weather affects people adversely and extreme cold weather can cause weapon malfunctions and breakage.

b. Snow is a big reason for malfunctions. Snow can get into the working parts, sights, and even the barrel of a weapon. So when you are moving through snow-covered woods or digging a foxhole in the snow, take care of your weapon. Keep your weapon out of the snow and always check it for snow clogs before firing.

c. Breakage can result when a weapon is warmed up too quickly in a cold environment. Extreme cold makes tempered steel brittle. Rapid firing of the weapon can further weaken the tempered steel by heating the barrel and receiver to sudden temperatures up to 750 degrees.

d. Cold weapons should first be fired at a slow rate of fire. Once the weapon's parts have warmed up, the rate of fire may be increased to normal speed.

e. A sweating weapon can also cause problems. Condensation forms on a weapon that is taken from extreme cold into a heated shelter. When the weapon is taken back outside, the sweat freezes on and in the weapon. This can cause malfunctions and even breakage.

f. Don't take a sweaty weapon into the cold weather – get rid of the sweat completely, even if it means disassembling the weapon and re-oiling it after cleaning.

g. There are other types of weapons problems that are caused by cold weather operations. For more information, check FM 31-70, "Basic Cold Weather Manual," it could save you from having serious problems during winter operations.

7. VEHICLE PREPARATION FOR WINTER.

a. Whether driving a POV or a GMV, the first important step to consider in winter driving is vehicle preparation. Without proper preparation, you may find yourself stranded and in a life-threatening situation.

b. Use the checklist below to prepare your POV for the long cold winter months. If driving a GMV, follow the maintenance checklist provided by the motor pool for the military-unique vehicle.

- ❖ **CHECK** the radiator hoses for leaks, cracks, and ensure clamps are tight. Replace cracked or brittle hoses.
- ❖ **CHECK** the antifreeze level to ensure you are protected for temperatures of at least -30 degrees Fahrenheit.

- **CHECK** the headlights, taillights, parking lights, and turn signals. Also check interior lights, such as map and dome lights. Ensure headlights are properly aligned. Adding extra weight to the trunk to increase traction may affect the alignment of the headlights.

- **CHECK** the battery to ensure proper fluid level, connections are tight, and cables and cable ends are not corroded. If the engine turns over slowly, have the battery checked for serviceability by a qualified mechanic.

- **CHECK/CHANGE** the oil and the oil filter as required. Use the oil weight recommended for the appropriate weather climate.

- **CHECK** the tires for adequate tread, correct inflation, and ensure that all tires are the same size and type. Mixing tires with different tread patterns, internal construction, and size degrades the stability of the vehicle and should be avoided.

- **CHECK** the heater and the defroster to ensure they are in proper working condition.

- **CHECK** the wiper blades for good shape; those designed for winter are recommended to help prevent wipers from icing up.

- **CHECK** the windshield washers to ensure washer motor is working and the nozzles are properly aligned.

- **CHECK** the exhaust system for leaks. Any evidence of fumes may indicate carbon monoxide is present. Replace faulty exhaust or tighten it to stop any leaks.

- **CHECK** the engine thermostat to ensure it is working properly.

- **CHECK** the radio as it can be used to receive information on road conditions and travel advisories. If your car is not equipped with a radio, carry a portable radio in your car.

- **TUNE UP** your car for the winter months to aid you in starting your car easier. Extreme cold temperature will make it harder to start your car, thus wearing down your battery.

- **SURVIVAL ITEMS** are important. These are some items you may want to keep handy in your vehicle:

  - Shovel, Flashlight, Tool Kit, Traction Mats, Tow Chain or Strap, Tire Chains, Flares (road type), Dry Sand in sealed container, Sleeping Bag/Blanket, Ice Scraper and Brush, First Aid Kit, High Energy Food/Water, Candle and Matches.

c. Periodically re-check your vehicle to ensure it is properly maintained. Have a qualified mechanics complete work that may be beyond your capabilities. You may have to depend on your car for survival, so be prepared.

8. WINTER DRIVING SAFETY.

a. Defensive driving means operating in a manner that will prevent not only you, but also other drivers and pedestrians from having an accident/collision. Winter conditions add an extra degree of difficulty requiring sharp skills, knowledge and alertness.

b. Following are tips for the safe, defensive winter driver:

(1) Plan for more time to get where you are going.

(a) The time it takes to get from one place to another between summer and winter will double. Not only do you need to slow down because it is slippery, other things such as visibility, snowplows, sanders, and traffic flow all have an affect. Don't allow yourself to be in a position to hurry during winter weather conditions--it doesn't pay!

(b) If you have to drive during a military mission, you should ask yourself these questions prior to getting on the road. Has a risk assessment been completed? Are you trained/qualified in winter driving techniques? Can your military mission be accomplished safely in the required time frame with the proper training and instruction provided prior to the mission?

(2) See and be seen.

(a) Visibility is a must - keep the windows, headlights, taillights and turn signals clear of ice and snow. Clean your windows thoroughly so that ice and snow don't create blind spots. A film also tends to build up on the inside of your windows (particularly for smokers). This kind of film can distort your vision. Clean the windows inside at least once every two or three weeks.

(b) Falling snow has the same effect as fog; therefore, be sure to use your low beams at night and high beams during the day, this will help others to see you. In addition to keeping your tail lights and turn signals cleared, be sure they work.

(3) Traction in the winter months is a must.

(a) You will need to replace your summer tires with all season or snow tires. Tires marked "M + S" – or "mud and snow" tires, also known as "all-season" tires, continue to provide safe all-weather performance, but may not always be suitable for severe snow conditions. If you intend to drive in severe winter conditions, **install four snow tires** on your vehicle that meet the new "snow tire" designation. Snow tires will help you to control your vehicle safely in slippery conditions.

(b) If you choose not to put snow tires on all four wheels, be sure to put them on your drive/power wheels. If your car is front-wheel drive, put the snow tires on the front and vice versa for rear-wheel drive.

(c) If you get stuck, your recovery procedure is to get the car rocking. Never get your wheels spinning -- you'll dig a deeper hole. Rock the car by shifting it from drive and reverse while gently press down on the accelerator. If you are unable to free your vehicle with this method, you will need to use a shovel and some sand that you store in your trunk for such emergencies.

(4) Braking and skidding require special techniques. On ice, your ability to feel the point at which your wheels begin to lock is minimal. The best method of braking on snow and ice is the "pumping" method. You should apply the brakes and release them. This is done quickly and repeatedly until you come to a stop. It is better to pump your brakes four, five, or six times as needed than to slam on your brakes causing the "wheel to lock" resulting in a skid. Should you find yourself in a skid, take the following steps:

(a) Rear-wheel drive.

- *Don't panic! You must remain calm and under control.*
- *Slowly remove your foot from the gas pedal.*
- *Pump the brakes with light touches.*
- *Keep the car in gear (the engine compression helps to reduce speed).*
- *Turn the wheels into the skid (the direction the rear end is moving).*
- *Steer gently and if a counter skid occurs repeat the process.*
- *Lastly, straighten your wheels and roll a short distance before pressing down on the accelerator.*

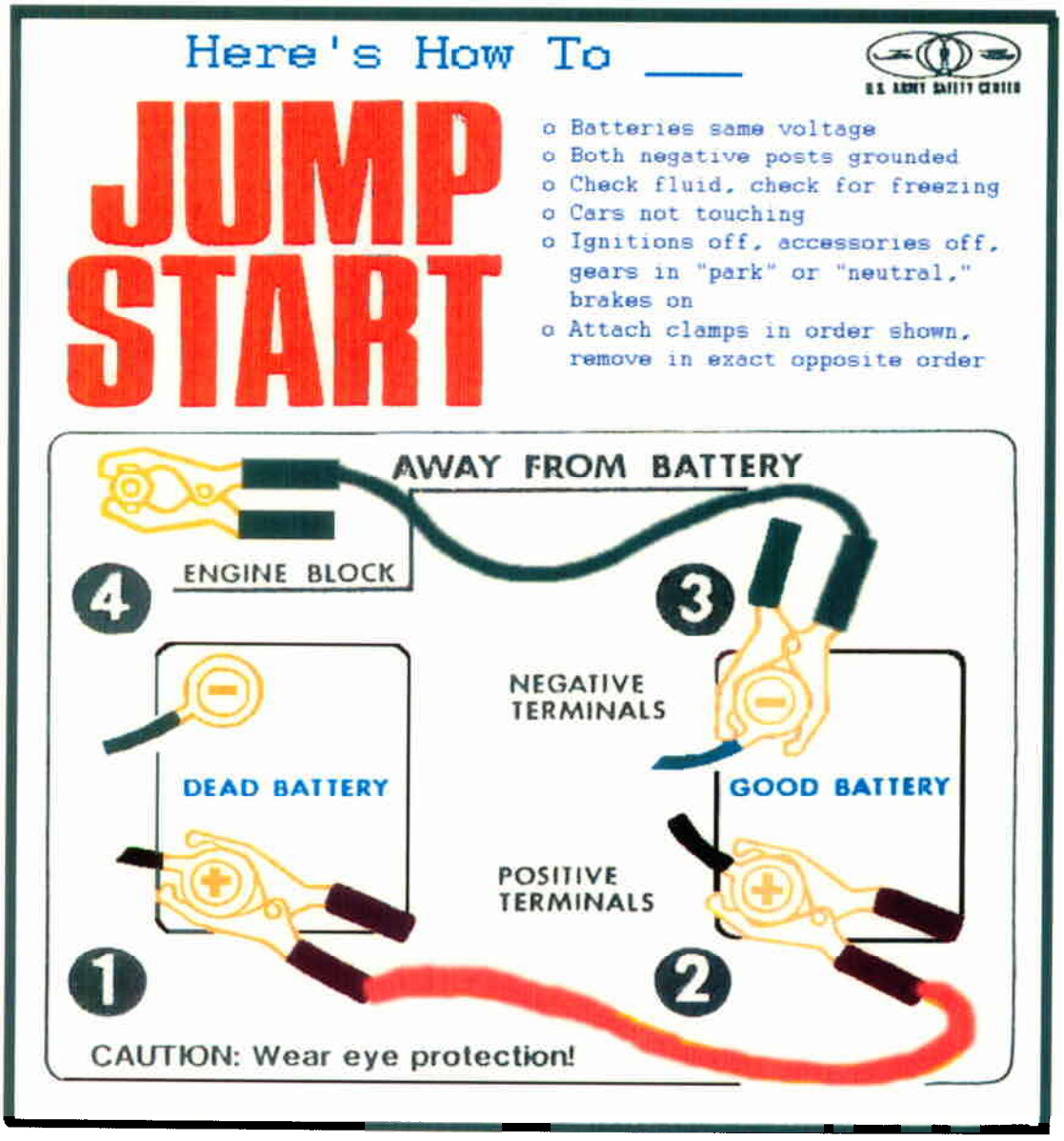
(b) Front-wheel drive.

- *Again don't panic!*
- *Keep your foot on the accelerator (do not decelerate).*
- *Turn the wheels into the skid.*
- *Do not touch the brakes and steer gently.*

(c) The reason we don't decelerate with front wheel drive is to keep the rear end from overtaking the front wheels, causing a spin out. One last note, whether your vehicle is front or rear-wheel driven and you have a standard or manual transmission, do not down shift your gears because it causes the wheels to slide rather than roll.

(d) Winter driving does call for an extra margin of caution, skill, and alertness. Be sure your vehicle is properly maintained and that you carry the emergency equipment for cold weather. Remember that traction is a key point, and adjust your speed and following distance to allow you to maintain full control of your vehicle.

c. Safe Jump Starting. A wrong hookup can cause the battery to blow up and shower a person with acid and bits of battery. That's an obvious sign you did something wrong. But other things can happen that aren't so noisy -- like a burned-up alternator or blown fuses in the electrical system. Avoid this by jump-starting your battery the safe and easy way. Hooking up jumper cables is as easy as 1-2-3-4. Keep in mind that the red cable hooks up to the positive (+) posts and the black cable go to the negative (-) ones. See below for easy steps--


Here's How To ____
JUMP START
o Batteries same voltage
o Both negative posts grounded
o Check fluid, check for freezing
o Cars not touching
o Ignitions off, accessories off, gears in "park" or "neutral," brakes on
o Attach clamps in order shown, remove in exact opposite order
AWAY FROM BATTERY
ENGINE BLOCK
4
3
NEGATIVE TERMINALS
DEAD BATTERY
GOOD BATTERY
POSITIVE TERMINALS
1
2
CAUTION: Wear eye protection!

9. GENERAL WINTER SAFETY HAZARDS.

a. Ice and Snow. Expect icy conditions any time the outside air temperature reaches 40 degrees F or lower. Although water freezes at 32 degrees F, road surface can freeze when the air temperature drops to 40 degrees or less. An important place to watch for this condition is on bridges. Bridge surfaces are exposed to the wind and cool off faster than the rest of the road. You should also prepare for icy conditions on roads through shaded areas where a cold wind can freeze a wet road surface.

(1) White Ice. Snow that has been compacted during the day and has slightly melted will freeze at night. Usually this white ice can be seen on the road. When traveling on white ice, drive very slowly. If you cannot find a place to park until conditions improve, install tire chains for better traction.

(2) Black Ice. Black ice, clear water that has frozen on black pavement, usually forms below overpasses, on bridges, in areas that are surrounded by landscape or on a source of water running across pavement. Black ice commonly occurs in low, shaded areas and/or when the road surface starts to freeze at night. You usually cannot see or feel this ice until the vehicle is already on it. You may not expect a patch of ice because you've been driving on dry, clear pavement. It may be an area where melting snow or a roadside spring caused water to run onto the road and freeze. If you are not aware that the water has frozen, you could lose control and the vehicle could skid.

(3) Blizzards.

(a) These are severe weather conditions distinguished by low temperature, strong winds, and large amounts of snow. The U.S. Weather Service defines a blizzard as a storm with winds over 32 mph and enough snow (falling or blowing) to limit your visibility to 500 feet or less. A severe blizzard has winds over 45 mph, visibility near zero, and temperatures of 10 degrees Fahrenheit or less.

(b) These storms are always hazardous whether you are walking or driving and you should avoid venturing outside unless it is absolutely necessary.

(4) Snow Blindness.

(a) A painful condition of the eyes caused by the reflection of the sun's ultraviolet rays on snow or ice. It can occur even when the sun's rays are partially hidden by a light mist or fog. A person blinded while alone is mostly helpless, and can easily freeze or starve to death.

(b) Symptoms include redness of the eyes and a gritty feeling, which progresses to pain and an inability to tolerate any kind of light. The pain has been compared to rubbing sandpaper across one's eyes.

(c) If your sunglasses are lost or broken, you can make a substitute for them. Cut a thin 1" long slits through a piece of cardboard, which is about 6" long and 3" wide. You can use strips of cloth or cord to hold the "cardboard sunglasses" in front of your eyes.

b. Walking. People who are careful should not fall while walking, but they do. They forget to walk carefully or they hurry on icy sidewalks, streets, or snow covered building entrances, and down they go. We can use common sense about how we walk and the footwear we use. Short steps and picking your path are the best aids on ice. Use footwear with soles made for winter.

c. Wintertime Joggers. Bundle up against the cold weather; however, too much protection can be a hazard to your health. Covering your ears will protect them, but will also reduce the amount of outside sound heard. Remain constantly alert and uncover at least part of your ears when the weather permits. Alter your jogging route to areas with little or no vehicle traffic.

d. Winter Recreation Hazards. Winter brings winter sports, activities, and recreation. All are to be enjoyed and experienced and all have hazards associated with them. Some of these hazards are hidden. Familiarize yourself with each activity and its hazards before you undertake it. Always dress properly for the activity at hand and the weather conditions. Dress in layers that can be removed as you and the day get warmer. For more information, talk to people knowledgeable in these areas, go to the library, and/or contact your local Safety Office.

(1) Sledding. Sledding is one of the most common past times, especially for youngsters. For their protection NEVER allow them to sled on roadways. A sled is fast moving, low to the ground, and hard to see. This makes it difficult for vehicles to spot them and usually does not provide adequate time to stop.

(2) Ice-skating. Ice skating is another popular sport. Apart from the bruised knees, elbows, and other parts of the body, it can also be very dangerous. Avoid skating on ponds, streams, and rivers. Fast moving currents, natural springs, and air pockets, etc., can make ice very treacherous. Look for ice rinks established by the Morale Support Division or your local community.

(3) Ice fishing. Ice fishing may be a new twist for the avid sports person. Ensure you are dressed properly, and check with local anglers and sport shops as the ice conditions and safe areas to fish.

(4) Skiing. Skiing is a major industry and attracts thousands of people each year. There are many unnecessary injuries as well.

(a) If you plan to ski, seek qualified instruction, maintain your equipment, and ensure the equipment is properly adjusted for you.

(b) Recognize your limitations. If you are tired or cold - stop, rest, or warm your body up for a while. Tired skiers are accidents waiting to happen. Obey all trail signs and beware of frostbite. Wear tinted goggles to combat the bright reflection of the sun. Use skiing courtesy and ski with a companion or on a supervised slope.

(5) Cross-country skiing and snowshoeing. Cross-country skiing and snowshoeing provides an excellent form of exercise as well as recreation. Make sure you are ready for it; take short trips at first. Never go alone and let someone, that's not in your party, know your route, destination, and estimated time of arrival. Take along first aid supplies, emergency food and survival items on longer trips.

(6) Snowball fights and snow forts. Snowball fights and snow forts are particularly common in early winter months. They are usually the first activity children will get actively involved with. Do not allow them to build their forts near roads. Suggest a snow wall instead of a tunnel, which could collapse and suffocate them. Warn children not to throw ice balls or snowballs at cars, buses, or other people. Parents must supervise their children activities to ensure these rules are followed.

(7) Snowmobiling. Snowmobiling is a fast growing sport in Korea. Each year, more and more snowmobiles are out on the trails. This increases the potential for accidents. Familiarize yourself with your machine; adhere to the safety tips in the operating manual, and wear a helmet at all times. Most of all wear appropriate clothing and obey the laws and regulations applicable to snowmobiles.

e. Snow and ice removal.

(1) Slips and falls on icy walkways account for a large percentage of personnel injuries during the fall and winter months. Many snow and ice removal accidents/injuries result in serious head, spinal, and fracture injuries. The best prevention for these accidents/injuries is the prompt removal of snow/ice before it becomes a hazard.

(2) Prior to the arrival of the winter season all units should prepare for snow/ice removal tasks by ensuring minimum required supplies (upright broom, snow shovel, sand/salt, etc) are available.

(3) Snow/ice should be removed from high traffic areas such as outside stairs and entrance/exit ways, to include all fire exits. When snow/ice cannot be removed, sand should be used to increase traction. The following guidelines should also be followed:

(a) Remind personnel to be extra cautious when taking their first step outside. The majority of falls occur when people make the transition from firm indoor footing to unexpectedly slick outdoor conditions.

(b) Avoid marching troops over slick/icy roads and walkways.

(c) During the hours of darkness avoid short cuts; walk on main roads facing traffic. Use the sidewalk and other illuminated areas when possible.

(d) Ensure you have firm footing on ladders and platforms before climbing. Use caution when mounting or working on tracked vehicles.

(e) Clean up water accumulation, which has a tendency to collect inside building entrances as the result of snow/ice deposits from footwear.

f. Shoveling Snow.

(1) Do not overload your shovel with snow, and do not shovel snow from an awkward position. Stop for a few moments if you start to overheat or become out of breath. The risk of heart attack will greatly increase, so pace yourself and don't exceed your limits.

(2) Go inside and warm up if you are cold. You will find shoveling easier if you start in one spot and work your way to the end. Allow plenty of time before shoveling snow from your driveway so as not to over exert or expose yourself.

(3) If you must shovel snow from a roof, use a lifeline and have a safety observer present.

g. Snow Blowers. Be alert when in the vicinity of an operating snow blower. Avoid the discharge chute or walking in front of the auger. If you operate a blower, attend a class first to learn proper operation. Never clean out the chute while the machine is running. If you are buying one for the first time, have the sales representative explain the machine thoroughly, read the operating instructions carefully prior to use. Never let your children get near a machine that is running.

10. HEATING.

a. Space heater operators will be properly trained and licensed. Competent personnel will set up heaters familiar with leak test procedures. An inspection by responsible unit fire or safety personnel will be performed before use.

b. Permanently installed heaters are the only approved space heaters authorized for use in buildings. Only approved, standard, portable space heaters are authorized for use in tents. Check with your local safety office for approved items. The use of privately owned space heaters is prohibited in buildings, tents and vehicles.

c. Hydrocarbon-fueled heaters inside sleeping quarters will be vented. Duct-type portable gasoline-fired heaters are not authorized for heating any building without prior approval of the Installation Fire Department.

d. A fire watch will be maintained in any tent using space heaters. The watch will be briefed on alarm procedures, fire extinguishing procedures, and early recognition of carbon monoxide poisoning. Heaters will not be left unattended.

e. Space heaters must be located a minimum of 3 feet from combustible material. Space heaters will be inspected daily. Fuel spills/leaks must be cleaned up upon DISCOVERY and the source of the spill or leak must be identified and corrected immediately.

f. Heaters will only be fueled with the type of fuel specified by the manufacturer and maintained IAW manufacturers' instructions.

g. Fuel tanks will be located outside tents and buildings. Store fuel cans outside structures at designated locations. Space heaters will be shut off when buildings are unoccupied.

h. Space heaters with open flames are prohibited in areas subject to flammable vapors such as gas stations, garages, paint shops, and aircraft hangars.

Information Paper
New Family of Space Heaters (FOSH)

H45 SHA SHC

(1) The New FOSH replaces the M-1941 Potbelly and the M-1950 Yukon with new systems which include the Space Heater Medium (SHM), the Space Heater Arctic (SHA), the Space Heater Convective (SHC), and the Thermoelectric Fan (TEF). These systems are common table of allowance items and are in various stages of development or availability.

(2) The heaters are self-contained, lightweight, rugged, simple to operate, and function in weather conditions down to –60 degrees Fahrenheit. They offer non-powered vaporizing burner technology, which provides clean, safe, and efficient burning of all liquid fuels, and also permits the combustion of coal and wood. A new multi-viscosity fuel control valve allows for a constant burn rate despite fuel viscosity. The integration of thermoelectrics in certain FOSH items also provides a new self-powered heat circulation capability.

(a) Space Heater Medium (H-45). 45,000 BTU, designed to heat GP series tents, replaces Potbelly heater, uses no electrical power, burns all liquid fuels as well as solid fuels, dimensions: 24" dia x 18" H, weight including all accessories is 70 lbs., NSN: 4520-01-329-3451, fielded FY92.

(b) Space Heater Arctic. 22,000 BTU, designed to heat 5-10 man arctic tents, replaces Yukon heater, uses no electrical power, burns all liquid fuels as well as solid fuel, dimensions: 16"H x 9" W x 16"L, weight with all accessories is 35 lbs., pre-assembled telescoping stack stores inside heater, NSN: 4520-01-444-2375, expected availability in Fall 1999, to order contact DSN 256-5543 Soldier Systems Command (SSCOM).

(c) Space Heater Convective. 35,000 BTU thermoelectric heater; provides self powered forced hot air circulation, burns all liquid fuels, designed to heat for Modular Command Post System (Old SICPS), operates either inside or outside tent, dimensions 17"H x 14"W x 39"L, weight is 67 lbs., NSN: 4520-01-431-8927, to order contact Soldier Systems Command DSN 256-5543.

(d) Thermoelectric Fan. Designed to enhance new FOSH heaters, placed on top of heaters, self powered, low maintenance, cuts fuel consumption by 50%, dimensions 12" dia 10" H, weight 12 lbs., cost to be determined, to order contact Soldier Systems Command DSN 256-5543.

11. CARBON MONOXIDE.

a. Carbon monoxide (CO) poisoning is a "silent killer." It occurs more frequently in winter months when people spend more time in a closed environment such as homes, cabins, tents, autos, communications vans, crew areas of tanks, maintenance shops, etc. The most common sources of CO in Korea are engine exhausts, heating stoves, and defective ondol heating systems fired by yontan (charcoal briquettes).

b. The first symptom of CO poisoning is usually a tightness across the forehead followed by a headache and pounding of the heart. A positive sign of progressive carbon monoxide poisoning is when the person's face becomes extremely red. Weariness, dizziness, and mental changes may also occur. If the victim was severely exposed to carbon monoxide symptoms may occur days, or even weeks, later even if the person at first appears to have fully recovered. Delayed symptoms include visual defects, dizziness, profound changes in emotions and will power, as well as mental changes.

c. Treatment. The following is recommended for persons with carbon monoxide poisoning:

(1) Remove the person away from the contaminated area into fresh air and loosen their clothing.

(2) Give artificial respiration or CPR, as appropriate.

(3) If oxygen is available, give it to the person by using a facemask. Seek medical attention immediately.

(4) Keep victim resting.

d. Prevention. You can safeguard yourself against carbon monoxide poisoning by making sure of the following:

(1) Never sit in a vehicle for long periods with the engine running and windows closed.

(2) Never sleep in or near vehicles with the engine running.

(3) Never operate engines in a closed garage without exhaust ventilation.

(4) Check to be sure there are no leaks in your vehicle exhaust system.

(5) Avoid the use of unvented heaters and charcoal grills in closed areas.

(6) Avoid lodging in a room or house heated by charcoal. If in doubt as to the heating system, open a window for ventilation.

(7) Make sure heaters are set at the proper combustion ratio and the heating system is leak free.

(8) Purchase a CO detector (make certain to read the directions for use and use correctly).

e. If you become stranded, you should remain in your vehicle. Running the engine/heater periodically will help keep you warm. However, when doing this, open the windows slightly and ensure the vehicle exhaust is not blocked (i.e., with snow). Only run the engine as long as it is necessary to keep warm.

f. Installation commanders and residents working together can prevent carbon monoxide poisoning from happening in living quarters. Commanders should provide qualified preventive maintenance personnel to routinely inspect quarters for serious health hazards. Inspection is especially critical when quarters have been vacated and are awaiting new families. Commanders can also provide programs that will teach residents how to identify and correct minor problems and report more serious problems, including potential safety hazards, to the installation safety office.

12. LEADER'S RESPONSIBILITIES.

a. Commanders/leaders must teach their personnel how to protect themselves against cold weather injuries. Use safety meetings and pre-exercise briefings to stress certain precautions on how to avoid injuries to troops.

b. First-line supervisors must realize it is their responsibility to--

(1) Make sure that everyone has the necessary cold weather gear and that it is in good condition.

(2) Train all personnel in the early recognition of cold weather induced injuries.

(3) Watch your people for early signs and symptoms of cold weather injuries.

(4) Rotate units and personnel according to the degree of exposure to cold weather.

(5) Ensure all personnel wear proper clothing.

(6) Establish an effective clothing re-supply program.

(7) Establish procedures to ensure appropriate sizing and fitting of clothing and footgear are in place.

(8) Ensure adequate meals, water, and, if possible, warm soups are available to all troops.

(9) Teach personnel the necessity for personal hygiene and first aid. Troops should review the First Aid Manual.

13. INDIVIDUAL RESPONSIBILITIES. Individual troops also have certain responsibilities to prevent cold weather injuries. All personnel should comply with the following:

a. Keep your body, especially your feet, clean and dry. Changing your socks and massaging your feet at least twice a day will prevent most foot injuries. Also keep glove inserts dry to protect your hands.

b. Wear only one pair of socks and glove inserts at a time. Wearing more can make boots and gloves fit too tightly and restrict circulation.

c. Avoid long periods of extreme activity and inactivity. Sweating causes reduction in insulation and can lead to dehydration. Inactivity results in less body heat, and if heat is lost faster than it is generated, injury can result.

d. Keep your clothes clean and dry. Dampness reduces the insulation qualities of clothing and increases heat loss.

e. Avoid wearing tight clothing. It can reduce insulation and blood circulation.

f. Remove your boots before getting into a sleeping bag. This is particularly important if socks are wet.

g. Stay with a broken-down vehicle to avoid traveling on your feet unless adequately dressed for cold weather.

h. Avoid using bare hands to handle anything cold. Avoid letting bare skin touch cold metal, snow, or other objects that hold and transfer cold.

i. Eat hot foods and drink warm liquids. Troops need to drink a lot of water even if they are not thirsty because the body loses great amounts of water in cold weather.

j. Report circulation problems and past cold weather injuries to immediate supervisors.

k. Blood circulation problems can make a person highly susceptible to frostbite.

l. Individuals who have suffered cold weather induced injuries in the past have a better than average chance of recurring injuries.

m. Avoid alcohol consumption in a cold environment. Individuals who have been drinking lose body heat faster and, therefore, will freeze sooner.

n. Use the buddy system. Members of squads and patrols should watch each other for signs of cold weather injury and take necessary actions. For example, if sudden blanching of the skin is noted promptly, immediate care will usually prevent the development of a more serious cold weather induced injury.

o. Avoid smoking in a cold environment. Nicotine causes narrowing of the blood vessels, which may further decrease the blood supply to body tissues susceptible to cold weather injuries.

14. SUCCESSFUL PREVENTION. Successful prevention of cold weather injuries requires vigorous command leadership and proper use of preventive measures that are taught, inspected, and enforced. Planning, cold weather training and the provision of proper clothing and equipment are paramount. Well-trained and disciplined personnel suffer fewer cold weather injuries.

Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the Commander, USFK (FKSF), Unit 15236, APO AP 96205-5326. This publication is available electronically at: https://www-eusa-1.korea.army.mil

FOR THE COMMANDER:

OFFICIAL:
CHARLES C. CAMPBELL
Lieutenant General, USA
Chief of Staff

Jimmie Collins
F. W. MORRIS
Assistant Adjutant General

DISTRIBUTION:
Electronic Media Only

APPENDIX A

HELPFUL WEB LINKS

Much of the information in this pamphlet was gathered from the following web sites:

UNITED STATES ARMY SAFETY CENTER: http://safety.army.mil/home.html

UNITED STATES NAVY SAFETY CENTER: http://www.safetycenter.navy.mil/

UNITED STATES AIR FORCE SAFETY CENTER: http://www-afsc.saia.af.mil/

UNITED STATE MARINE CORPS SAFETY DIVISION: http://www.hqmc.usmc.mil/safety.nsf/

UNITED STATES COAST GUARD WEB SITE: http://www.uscg.mil/hq/msc/

USFK/EA SAFETY WEB PUBLIC WEB SITE: http://8tharmy.korea.army.mil/safety/

USFK/EA SAFETY SECURE WEB SITE: https://www-eusa-4.korea.army.mil/Safety/

18th MEDICAL COMMAND: https://204.208.28.13/Main/Index.html

52ND MEDICAL BATTALION (EB): https://204.208.28.13/52Bn/Main.htm

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE:
http://chppm-www.apgea.army.mil

FEDERAL EMERGENCY MANAGEMENT AGENCY WEB:
http://www.fema.gov/hazards/floods/whatshouldidoduring.shtm

DEFENSE ENVIRONMENTAL NETWORK AND EXCHANGE:
https://www.denix.osd.mil/

US ARMY PUBLICATIONS WEB SITE: http://www.usapa.army.mil/

8TH US ARMY COLLABORATION WEB PAGE:
https://www-eusa-1.korea.army.mil/_vti_bin/owssvr.dll?Using=Default%2ehtm

DEPARTMENT OF TRANSPORTATION: http://www.dot.gov/

CONSUMER PRODUCT SAFETY COMMISSION: http://www.cpsc.gov/

ENVORNMENTAL HEALTH AND SAFETY: http://www.pp.okstate.edu/ehs/links/tractor.htm

US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE:
http://chppm-www.apgea.army.mil

NATIONAL FIRE PROTECTION AGENCY: http://www.nfpa.org/

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION: http://www.osha.gov/

INDUSTRIAL SAFETY HEALTH NEWS: http://www.ishn.com/

NATIONAL SAFETY COUNCIL: http://www.nsc.org/

DOD PUBLICATIONS: http://www.dtic.mil/whs/directives/

A NAVY SOURCE FOR GOOD TRAINING INFORMATION:
http://www.safetycenter.navy.mil/seasonal/spring.htm

APPENDIX B

HEMORRHAGIC FEVER WITH RENAL SYNDROME (HFRS)

PURPOSE. To provide information about HFRS in Korea.

DISCUSSION.

- HFRS is a viral disease that is transmitted through inhalation of dust contaminated with infected rodent feces, urine, and/or saliva.
- Reservoir for HFRS in Korea is the striped field mouse and city rat.
  -- Virus present in urine, feces, saliva, and lung.
  -- People become infected by breathing or swallowing dust containing dried urine or saliva.
  -- Person-person transmission of disease does not occur.
- Most likely to occur OCT-DEC and MAY-JUN.
- Most likely to be contracted when training in the field.
- The incubation period is usually 2-4 weeks, but ranges from a few days to >2 months.
- Early symptoms include fever, sore throat, and other "flu-like" symptoms.
- There are five phases to the disease; fever (3-7 days), low blood pressure (1-3 days), loss of urine output (3-7 days), excessive urine output (signals recovery), and convalescent (weeks to months).
- Annually, there are an average of 0-3 cases among USFK personnel.
- Mortality rates range from about 5 – 15%.
- Number of asymptomatic cases and mild cases is unknown.
- Early medical intervention, including ribavirin therapy, can prevent death.

- Field sanitation measures and personal protective measures are always required to protect against HFRS.
  -- Disinfect rodent contaminated areas with dilute bleach and use wet mops.
  -- Prevent rodent access to living and food areas.
  -- Cover all food in rodent-proof containers and properly dispose of garbage.
  -- Use properly fitting respirators or masks if exposed to contaminated dust.
  -- Avoid using training areas associated with previous cases or high rodent infection rates.

SUMMARY:
- KHF is a preventable illness with proper field sanitation.
- Early assessment and treatment of illness will prevent mortality.
- Convalescence from illness is long.

APPENDIX C

MALARIA IN KOREA

PURPOSE. To provide a status report on vivax malaria among 8th US Army personnel and to recommend appropriate and effective countermeasures.

DISCUSSION. Vivax malaria, a non-lethal and treatable disease in Korea, affects 8th U.S. Army soldiers in a pattern very similar to Korean civilian and military populations but at a much smaller magnitude. (Table 1)

Table B-1. Malaria Cases by group, year and location of diagnosis.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Korean TOTAL	1	21	107	356	1724	3932	3621	4142	2533	1790	1069
Civilian	0	2	7	46	361	1148	1541	1580	1102	911	563
Discharged Soldier	0	1	12	25	207	1127	996	1273	746	471	266
Active Military	1	18	88	285	1156	1657	1084	1289	685	408	240
8th US Army TOTAL	0	1	0	14	35	47	48	42	29	28	23
Korea Dx	0	1	0	12	27	22	20	17	12	16	19
US Dx	0	0	0	2	8	25	28	25	17	12	4

The number of patients diagnosed with malaria in Korea among 8th U.S. Army soldiers has remained stable since 2001. An epidemiological assessment of patients with exposure and diagnosis in Korea revealed that approximately 50% have latent forms from infections from the previous year. Most malaria cases have been acquired in the Munsan Area (Warrior Base Complex), with a few cases reported from Korean Training Center. During 2003, one case was reported from Yongin, approximately 25 Km south of Seoul. This is the first reported case among U.S. personnel south of Seoul.

Commanders and their personnel must remain vigilant and use all means possible to prevent malaria, primarily Personal Protective Measures (PPM), to include, proper wear of the uniform (sleeves rolled down), treatment of the uniform with permethrin, use of DEET repellent on exposed areas of skin, and use of bed nets that are treated with permethrin.

Blood donations are restricted for 1-3 years after a tour in Korea.

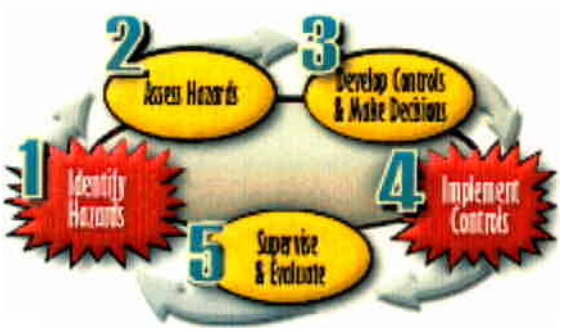
APPENDIX D

RISK MANAGEMENT (RM)

RISK MANAGEMENT (RM).

a. RM is the process of **identifying, assessing, and controlling risks** arising from operations/activities, and making decisions that balance risk costs with the operation/activity benefits. Simply put, it is a common sense approach to incorporating safety into everything we do. If the risks of what you plan to do outweigh the benefits, then you should find a way to reduce the risk, or reassess the need to do it. RM is a systematic, five-step process that can be applied to any situation, program or environment. Each of the services uses similar but slightly different processes. Some use the term operational RM and apply a six-step process. The only difference is that they have taken step 3 and broken it into two steps in their programs.

b. RM Process: Five step RM Process



STEP 1. Identify the hazards--recognize potential sources of danger associated with a task or mission.

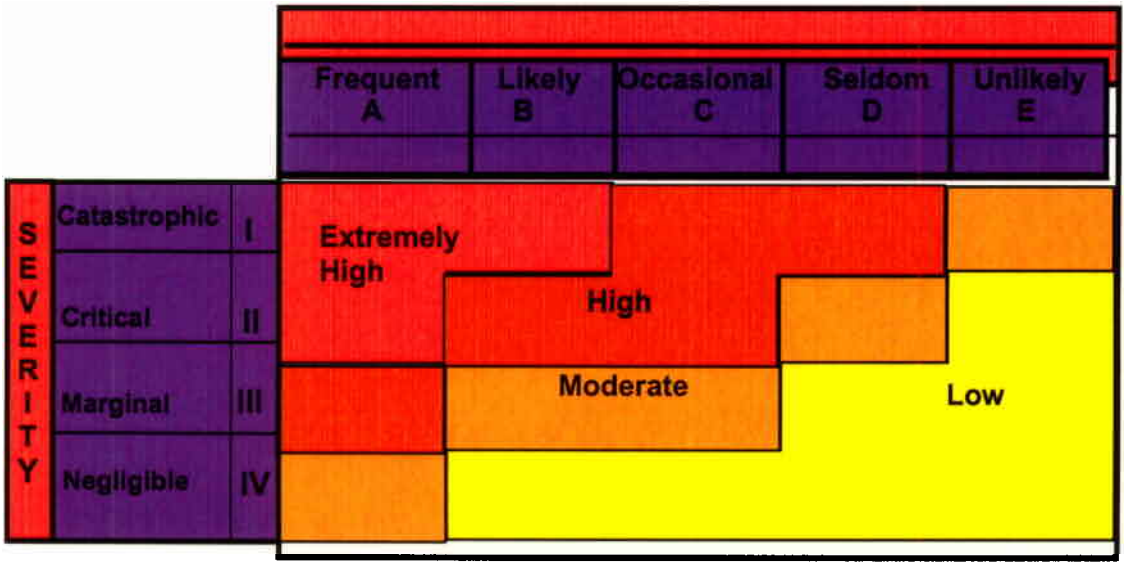
STEP 2. Assess the hazards--determine the impact of each hazard in terms of potential loss and cost, based on probability and severity.

STEP 3. Develop Controls and Make a risk decision--choose control measures that eliminate hazard or reduce risk to an acceptable level. Control measures should ensure that risks are reduced to a level where benefits outweigh potential cost.

STEP 4. Implement controls--put controls in place that eliminate hazards or reduce risks.

STEP 5. Supervise--ensure that everyone knows, performs to, and enforces standards and controls. Evaluate the effectiveness of controls and adjust/update as necessary.

RISK ASSESSMENT MATRIX
PROBABILITY



PROBABILITY. The likelihood that an event will occur.

- **Frequent** - Occurs often, continuously experienced.
- **Likely** - Occurs several times.
- **Occasional** - Occurs sporadically.
- **Seldom** - Unlikely, but could occur at some time.
- **Unlikely** - Can assume it will not occur.

SEVERITY. The degree of injury, property damage, or other mission-impairing factor.

- **Catastrophic** - Death or permanent total disability, system loss, major property damage.
- **Critical** - Permanent partial disability, temporary total disability in excess of three months, major system damage, significant property damage.
- **Marginal** - Minor injury, lost-workday accident, minor system damage, and minor property damage.
- **Negligible** - First-aid or minor medical treatment, minor system impairment.

RISK LEVEL.

- **Extremely high** - Loss of ability to accomplish mission.
- **High** - Significantly degrades mission capabilities in terms of required mission standards.
- **Moderate** - Degrades mission capabilities in terms of required mission standards.
- **Low** - Little or no impact on accomplishment of mission.

Six-Step ORM Process

GLOSSARY

Abbreviations

BDU	Battle Dress Uniform
CO	Carbon Monoxide
CPR	Cardio Pulmonary Resuscitation
DOD	Department of Defense
GMV	Government Motor Vehicle
HFRS	Hemorrhagic Fever with Renal Syndrome
ECWCS	Extended Cold Weather Clothing System
MOPP	Mission Oriented Protective Posture
PFU	Physical Fitness Uniform
PM	Preventive Medicine
POV	Privately Owned Vehicle
PT	Physical Training
RM	Risk Management
ROK	Republic of Korea
SHA	Space Heater Arctic
SHC	Space Heater Convective
TEF	Thermoelectric Fan
U.S.	United States (of America)
USFK	United States Forces, Korea
WBGT	Wet Bulb Globe Temperature